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German demonstrative adverbs of spatial deixis: Evidence from native speakers, L2 learners, and corpora

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GERMAN DEMONSTRATIVE ADVERBS OF SPATIAL DEIXIS:
EVIDENCE FROM NATIVE SPEAKERS, L2 LEARNERS, AND CORPORA

by

Johnathan Lee William Gajdos

An Abstract

Of a thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in German
in the Graduate College of
The University of Iowa

May 2011

Thesis Supervisor: Professor Sarah M.B. Fagan

The use of demonstrative adverbs is a function of making reference to a real or abstract location. In German, there are three principle demonstrative adverbs that are used spatially—*hier*, *da*, and *dort*. This thesis provides an overview of the primary theories proposed in the literature to explain the German *hier/da/dort* system of reference and examines those claims from the context of a study of L2 learners and L1 speakers combined with a corpus-based analysis of the frequency, distribution, and use of the demonstrative adverbs, both in isolation and in unison. The evidence from learner data, native speaker interpretations and grammaticality judgments, adult use corpora, and L1 child corpora all point to *da* as playing a more significant role than *dort* in the three-way spatial adverb system of German. Evidence from multiple sources points to the default *hier* ‘here’ counterpart, *there*-like equivalent being *da*. While *da* is not always used to indicate a non-speaker location, this flexibility is not an indication of its primary or default role. Context often provides semantic information, and even if used in a semi-neutral manner, the use of *da* often suggests the possibility of a *dort*-type non-speaker location or of an abstract location/third location. The flexibility that *da* has in being used in non-contrastive locations or idiomatic expressions to refer to the location of the speaker does not discount the role *da* has as a primary means of indicating spatial differences in opposition to *hier*. The presence of *dort* enables a third location to be identified with a distinct spatial adverb, while *hier* appears to be highly restricted in its usage. Evidence from child L1 learners is congruent with this analysis. The frequency of *da* in child L1 learner speech cannot simply be explained by phonetic production, and the child L1 corpora show that *dort* is only chosen when *da* and *hier* are already present (three or more locations are referenced). Native speaker survey data concerning the three

spatial adverbs under investigation indicate that locational situation affects the acceptance and interpretation of all three adverbs including *da*. *Da* is not shown to be a superfluous double, as it is neither consistently accepted at or near 100%, nor is its acceptance consistently near that of *dort* or *hier*. There is evidence that native speaker grammaticality judgments show regional variation when *da* is used to indicate a speaker location, with northern speakers tending to prefer *hier* and southern speakers tending to prefer *da*. L2 speakers show a greater variation from native speakers with respect to their acceptance and interpretations of *da* as compared with that of *hier* and *dort*. Non-native speakers were more likely to accept *hier* and less likely to accept *da* than were the native speakers in this study. Elementary, intermediate, and advanced L2 learners showed a significant difference in their acceptance rates of *da* in at least 50% of the items, while the group of highly-proficient L2 speakers of German showed a significant difference in their acceptance of *da* in only one item.

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Graduate College
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CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

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To those who have taught me and those whom I teach

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CHAPTER 1 INTRODUCTION

The problem of spatial adverbs

Demonstrative adverbs allow for speakers to refer to objects in the context of the location relative to the speaker-hearer interaction. The use of demonstrative adverbs is a function of making reference to a real or abstract location, and they can be used deictically or anaphorically. Demonstrative adverbs are used in localization of objects in relation to two places—the local anchor known to both speaker and hearer and the location to be identified by the adverb. At times, however, the distinction between what is the anchor and what is the identified location is obscure. Though there are similarities between the English and German systems of demonstrative adverbs, there are important differences as well. The modern English system of demonstrative adverbs is binary, consisting of *here* and *there*. In German, there are three such demonstrative adverbs—*hier*, *da*, and *dort*.

While an initial analysis of the two languages' demonstrative adverbs may show pairs between *here* and *hier* and between *there* and *dort*, the third option in German, *da*, presents a challenge. English correspondences with *da* are not straightforward, and *da* exhibits a situational flexibility that is not always present in English. Understanding *da* and its place in the linguistic system is necessary due to its high frequency of occurrence (on the whole, it occurs more frequently than does *dort*). Additionally, since *da* is one of the first words that L1 child learners of German seem to use (Ehrich 1982), examining the use of *da* in the context of L2 acquisition would enable a comparative analysis of the acquisition process between L1 and L2 learners.

This work sets out to provide an overview of the primary theories proposed in the literature to explain the German *hier/da/dort* system and examine those claims from the context of a study of L2 learners and L1 speakers combined with a corpus-based analysis of the frequency, distribution, and semantic-pragmatic use of the demonstrative adverbs,

both in isolation and in unison. Previous accounts of the spatial adverbs in German have based their analysis solely on isolated grammaticality judgments of the author or other small group of native speakers. This work sets out to present a data-driven analysis by drawing from L1 learner and native speaker corpus data as well as an empirical study of the grammaticality judgments and interpretations of both native speaker and L2 learners. In this work, native speakers are used both as a control group against which the L2 learners can be compared as well as a participant group in their own right with their own judgments and interpretations: the native speaker group is used to determine native-like performance, not merely to confirm expected performance. In addition to investigating the L2 acquisition of this system of reference among traditional L2 learners, the study also considers the judgments and interpretations of a group of highly-proficient non-native speakers. The wide range of empirical data considered by the various parts of this study enable a comprehensive analysis of the German system of spatial adverbs.

Specifically, the following questions are addressed:

- (1) How do native speakers use *hier*, *da*, and *dort* to refer to locations?
- (2) How do native speakers interpret the use of *hier*, *da*, and *dort* as conveying specific or ambiguous location information?
- (3) Is there regional variation in how native speakers use and interpret *hier*, *da*, and *dort*?
- (4) How do non-native speakers interpret and judge the use of *hier*, *da*, and *dort*? Do they exhibit any acceptance or interpretation patterns? At what level, if any, do they exhibit native-like performance?
- (5) Do child L1 learners of German exhibit the same or different usage patterns as adult native speakers? Are there any acquisitional patterns or orders that are observable?
- (6) How do the results of the three main data sources fit together to inform an analysis of the use and interpretation of *hier*, *da*, and *dort* in modern German?

Before turning to the consideration of the empirical data, the system of the use of spatial demonstrative adverbs will be considered from the perspective of spatial deixis. After

reviewing the relevant literature and previous considerations of this system, native speaker corpus data will be used in Chapter 3 to form the foundation of an understanding of the use of the three primary adverbs under investigation. Chapter 4 presents and analyzes the data from a pilot and expanded study of the interpretation and acceptance of *hier*, *da*, and *dort*; in this chapter the focus is on the L2 learners and the highly-proficient non-native speakers. The focus turns to the native speaker data in Chapter 5, where the data is considered for both the native speaker group as a whole and as subgroups from different regions. Chapter 6 presents the final piece of empirical data in an analysis of child L1 learner corpora.

Spatial demonstrative adverbs in German

Spatial deixis

Spatial deixis in German can often be viewed as being speaker-centered. That is to say, the choice of lexical item is dependent on the semantic meaning of the utterance in relation to the speaker: for example, compounds with *hin* signifying movement away from the speaker and those with *her* demonstrating movement toward the speaker (Stevens 1992). With respect to adverbs, English and German adverbs have a similar localizing function. German *hier* and English *here* signify a location that is the same as the speaker, while *dort* and *there* indicate some other location. As in English, *hier* can be used to describe locations broadly, referring perhaps to an office, the University of Iowa, the state of Iowa, or even the world. But where does *da* fit into this schema? Ehrich (1982) proposes that deictic uses of *da* occur heterodeictically (not the same as speaker location) and deictic *da* is therefore used alongside *dort* in cases where the English *there* would be used in deictic expressions.

Noting, though, that German *da* can, in some cases, be used autodeictically (same location as speaker), Lenz (2001) analyzes *da* as being a counterpart both to *here* (when used autodeictically) and to *there* (when used heterodeictically). While the choice of

adverb in English is dependent only on the speaker's location, the hearer's location can be significant in German. He presents the following scenario, which refers to the sentences shown in (7): "If a lecturer at the end of a non-compulsory lecture wants to express her relief that her students have not yet disappeared, she can use *hier* or *da* as in [a.] and [b.]. In English she could only use *here* as in [c.]. The use of *there* in [d.] is clearly inappropriate in this situation" (2001:41).

- (7) a. Ich bin froh, dass Sie so lange da geblieben sind.
 b. Ich bin froh, dass Sie lange hier geblieben sind.
 c. I am glad that you have stayed here for so long.
 d. *I am glad that you have stayed there for so long.

Under this analysis, the use of *da* is autodeictic; though neither *dort* nor *there* would be appropriate, *da* is perfectly natural. Deictic *da* can correspond to *hier/here* as well as to *dort/there*. Moilanen (1978) accounts for these uses by according *da* with the pragmatic ability to be a signal used by the speaker to indicate that the hearers share the same reference location as the speaker. An earlier study of recorded interactions of two native speakers of German similarly provides support for Lenz's claim for autodeictic *da*, arguing that the binary choice between the adverbs *hier* and *da* is motivated by different levels of accessibility to the pointed-to location (Reule 1984:187-199). This study, though, used a dataset of only two speakers and the judgments as to accessibility were subjective.

An examination of the treatment of *da* in dictionaries and other reference works can provide information as to what semantic tendencies are observed by lexicographers and what rules or patterns are prescribed or described by grammarians. In the Wahrig dictionary, "*hier, an dieser Stelle; dort, an jener Stelle*" 'here, at this place; there, at that place' constitutes the primary definition provided for *da*; *hier* and *dort* are subsumed into a single numbered definition in the entry for *da* (Wahrig 2005:327). The usage examples provided do not attempt to differentiate between *hier* and *dort* meanings: *da* is simply

presented as having both possible meanings within a single numbered entry, and no examples are provided to assist the reader in disambiguating these uses. Similarly, among the synonyms provided for *da* in the Duden Synonymwörterbuch (synonym dictionary) are both *hier* (in connection with “an dieser Stelle, an diesem Ort”) and *dort* (Eickhoff & Haller-Wolf 2007). The Duden Deutsches Universalwörterbuch (universal dictionary), however, attempts to provide some distinction between the two types of meaning, providing two primary definitions of *da*, one focusing around *dort*, and the other around *hier* (Osterwinter et al. 2006). The diversity in the use of *da* is exemplified through the phrases included in the definition text. The Duden Universalwörterbuch uses the following examples in the *dort*-centric definition section¹:

- (8) da ist die Haltestelle
‘there is the (bus) stop’
- (9) es muss noch Brot da
‘there must still be bread (Ø/here/there)’
- (10) diese Dinge sind dazu da, dass man sie benutzt
‘these things are here/there to be used’
- (11) er wohnt da
‘he lives there/here’
- (12) es ist niemand da
‘there is no one here/there’
- (13) von den alten Leuten, die er gekannt hatte, waren nicht mehr viele da
‘of the elderly whom he had known, not many were there anymore’
- (14) er war nur noch für sie da
‘he was only there for her’

¹ Throughout this work, translations, unless specified otherwise, are my own. In English translations, in instances where more than one of Ø, *here*, or *there* are used, these English options are listed in order of decreasing likelihood as being used in a similar utterance based on my own native speaker intuitions. Though I recognize the limited value of such intuitions, nonetheless they are included so as to indicate cases where there may be some variation in appropriate translation, even if the rank order might vary from the choices other native speakers would make.

- (15) langsam wachte sie auf, aber sie war noch nicht ganz da
‘she slowly woke up, but she wasn’t quite there’
- (16) ein solcher Fall ist noch nie da gewesen
‘such a case has not yet been there/here’

Fewer examples are given in the definition involving *hier*:

- (17) da sind wir
‘here/there we are’
- (18) ist da jemand
‘is someone there/here?’
- (19) da, nimm das Geld
‘here, take the money’

One cannot infer from the 3:1 ratio of examples of *dort:hier* instances of *da* that *da* more often takes on a *dort*-related (somewhere other than here) meaning. One reason for high numbers of *dort* categorized examples may be that *da* usage is highly contextual and if one is forced to classify between *here* or *there*, it may simply be easier to choose *there*. Also, a certain number of set expressions may express a meaning likely referring to some location other than *here*. The whole Duden dictionary classification, though, appears to be of limited utility in explaining the diversity present in the use of *da*, though the varied examples provide evidence of the versatility and complexity of the use of *da*, including the use of *da* in a metaphorical, non-literal sense, as in (8) and (9), where *da* may be seen as referring to one’s existence/presence or state of mind. It reflects more on idiomatic usage and lexicographic judgment about value to the user of a dictionary than on the actual frequency distribution.

Grammar references similarly provide only limited insight into the usage of *da*. The Duden Grammatik is largely silent on the issue of the usage of *hier*, *da*, and *dort*; only *dort* appears in a table classifying adverbs, and the discussion of *da* deals with the formation and use of prepositional adverbial compounds (*daran*, *darauf*, etc.) (Kunkel-Razum & Münzberg 2005:576, 586-587). In an English-language reference grammar to

German, Durrell writes that *da* is “a less emphatic alternative to *dort*,” but then indicates that in other contexts it may correspond to *hier/here* (Durrell 2002:144). He does not elaborate on what it means to refer to a location in a “less emphatic” manner nor does he provide guidance on what situations might be conducive to the use of the “less emphatic” *da* as opposed to the presumably “more emphatic” *dort*. Durrell does, however, seem to consider *da* more aligned with *dort* than with *hier* despite the ability for *da* to be used in (at least some unspecified) circumstances as an alternative to *hier*. All of the above-mentioned reference works, though, largely gloss over any meaningful distinctions or usage patterns with the choice of *da* over the alternatives *hier* and *dort*, choosing to acknowledge the use of *da* as a possibility without providing guidance or an analysis.

Anaphoric uses of *hier*, *dort*, and *da*

While deictic occurrences of demonstrative adverbs introduce a location not already present in the utterance, anaphoric or pro-locative uses refer back to an antecedent location already contained in the utterance. The adverb forms themselves are the same in both of these types of occurrences, but looking at the subcategories separately enables the consideration of possible differences in structure and use. While Klein (1978) does not differentiate between deictic and anaphoric uses of adverbials, Ehrich (1982:45) asserts that such a distinction between strict deictic uses and strict anaphoric uses of demonstrative adverbs in German is not only possible, but also necessary. In German temporal deixis, there are only deictic uses—and no anaphoric uses—she argues, of adverbs such as *jetzt* ‘now’, *gleich* ‘immediately’, and *eben* ‘just’. With spatial deixis, however, reference points can be established through the structure of the sentence. Even the use of *hier* and *dort*, she maintains, can be influenced not only by deixis but also by anaphoric reference.

Even though demonstrative adverbs have a core deictic function, they can also function anaphorically, as in (20) and (21) (2001:48-49):

- (20) I was born in London and have lived here/there all my life.
- (21) Karl Valentin ist in München geboren, und er ist hier/dort/da auch aufgewachsen.
Karl Valentin was born in Munich, and he also grew up here/there/here-there

These anaphoric uses, however, behave deictically, in that the use of *here*, *there*, *hier*, and *dort* may depend on the speaker's location. A speaker would only select *here* in (20) if she were in London at the moment of speaking, while *there* is only felicitous if she were not in London. Similarly, in German, the speaker's use of *dort* in (21) is appropriate only if he is not in Munich; using *hier* requires that he be in Munich at the time of speaking. The German *da*, however, does not necessarily provide such clear information about locating the speaker. *Da* can occur independently of speaker location and therefore is often understood as able to have a non-deictic, purely anaphoric function. Using *da* in (21), for example, provides no information about where the speaker currently lives: the speaker could live in Munich (and use *hier* or *da*) or not live in Munich (and use *dort* or *da*) (Lenz 2001). While "in English [the speaker] necessarily reveals his or her standpoint in relation to this place, [...] in German the speaker can choose the neutral *da*"; the choice of *da* provides information neither about the location of the speaker nor the hearer (Lenz 2001:49). The question remains, though, whether a choice can be truly neutral. The very act of choosing something purportedly neutral may in and of itself convey certain location information—such as uncertainty. Also, it does not seem that *da* can always be naturally replaced by one of its two counterparts.

Similarly, Ehrich (1982:56) presents the following example:

- (22) Ich bin vor vier Jahren von Düsseldorf nach Nijmegen gegangen und
'Four years ago I moved from Düsseldorf to Nijmegen,

hier/dort/da will ich vorläufig bleiben
and here/there/here-there I want to stay for some time.'

Like Lenz, Ehrich argues that *hier* can only be used if the sentences is spoken in Nijmegen and *dort* only if it is uttered somewhere other than Nijmegen, while *da* can be

used regardless of where the speaker is at the time of utterance. While *hier* and *dort* remain deictic anaphors, *da* is seen in the literature to have a purely anaphoric function that is only reliant on its antecedent and not the spatial relationship surrounding the speaker-hearer continuum. Thus, though German *da* has parallels to English, this theory would suggest that it has the ability to be used in cases where English counterparts could not be expressed through the use of demonstratives (Blühdorn 2002). Ehrich presents additional evidence for the use of *da* as “a strict anaphor, i.e. as a pointer to any non- or non-individually referring term in non-topic position”, arguing that this role cannot be fulfilled with *hier* or *dort* (1982:60):

- (23) Peter raucht im Bett und Paul trinkt da/*hier/*dort.
 Peter smokes in bed and Paul drinks there/*here/*there
- (24) Johannes wünscht sich einen Sandkasten. Er will da/*hier/*dort Schlösser und
 Johannes wants a sandcastle. He wants there/*hier/*dort castles and
 Burgen bauen.
 forts build

Only *da* is acceptable in (23) and (24) due to what Ehrich describes as the lack of deictic content. Furthermore, the anaphoric uses of *da* seem to be acceptable both in cases that might be seen as sloppy identity², similar to that identified by Lenz (2001) (as in (23), where there is an interpretational ambiguity since the activities of Peter and Paul may be taking place in their own respective beds) and exact identity (as in (5), where there is only one sandcastle). Ehrich uses the contrast between the use of *da* and that of *hier* and *dort* to argue that *da* is “the most neutral element within the system of German spatial deixis” (1982:62). “Most neutral” does not, however, carry the same meaning as

² The term ‘sloppy identity’ stems from Generative theories of grammar (Ross 1969; Ross 1967) under which pronominal reference may exist in a ‘sloppy,’ non-strict relationship and thus lead to ambiguity in semantic interpretation and determining the underlying syntactic structure (Bach et al. 1974; Dahl 1973).

“neutral”: her claim is not that *da* is completely neutral, but only that it is more neutral than either *hier* or *dort*, a claim which should result in little objection from others. More useful would be a description of when *da* is neutral and when it is not neutral; these distinctions would help yield a better understanding than a simple superficial comparison can. Also agreeing with Ehrich’s analysis, Lenz (2001) presents two anaphoric forms of *da*—a *da*₁ used in cases of sloppy identity (or indefinite localization) and a *da*₂ used in cases of exact identity. Contradicting these claims for the neutrality of anaphoric *da* is Moilanen (1978), who claims that anaphoric usage is a secondary role in which *da* can be used in the place of *dort*, though Blühdorn (2002) refutes such arguments by describing the adverb selection as being a function of proximity and speaker location and not related to antecedent. For Blühdorn, then, a truly anaphoric *da* does not exist: an anaphoric-like use of *da* continues to be driven by deictic reference and not solely by an intra-utterance relationship.

Comparison of English and German

In English, there is little disagreement that the choice of demonstrative adverbs is a function of reference to speaker location. With a binary system, the descriptive difficulties are few. Though English once had a tripartite system of demonstrative adverbs—with the inclusion of *yonder*—there, too, speaker location was the key function: *here*, *there*, and ‘*over there*’ (Lenz 2001). In German, the addition of *da* alongside *hier* and *dort* presents a descriptive and analytical challenge. Sometimes, *da* corresponds to English *here* and sometimes it corresponds to English *there*. In still other cases, *da* may correspond to something other than *here* or *there*. In the Duden Universalwörterbuch phrase in example (9), repeated below, *da* is probably best translated in English with Ø, with the location of where the bread must be left up to the context of the utterance.

- (25) es muss noch Brot da
 ‘there must still be bread (Ø/here/there)’

Similarly, in the example of a question posed by someone calling up and asking to speak to someone, *da* might best be translated with *in* (though *there* would also be a possibility):

- (26) Ist Frau Schmidt da?
 ‘Is Frau Schmidt in/there?’

To further add complication to the system, *da* appears to have a different distribution when used anaphorically as opposed to deictically, and *da*, unlike *hier/dort* and *here/there* is posited to be used in a completely non-deictic, purely anaphoric way. The multiple meanings of *da* leads to the realignment of the meanings of *hier* and *dort*—forcing a third member into the system. How, though, does that system function? Are there any patterns or rules that can be applied to understand it? Regardless of whether or not *da* can function as a true anaphor, it certainly may be used if not to refer back to a location previously mentioned in the utterance, at least to the same location as was previously referenced.

The complexity of the German system, coupled with the differences between spatial reference in English and German, force L2 learners of German to make choices that may be unnatural to them. While *da* is not infrequently used, the ways in which it is used and the meaning its use conveys may present the learner with a challenge in interpreting the received input. If there is native speaker interpretive and acceptance variance, then the learners’ task is by its nature non-trivial.

CHAPTER 2 A REVIEW OF THE LITERATURE ON DEIXIS

Since much of the consideration of the three adverbs that are the subject of this study is reliant on how speakers and learners use and understand spatial reference, examining how deictic reference is treated in the literature can serve a useful role in this analysis. Reference is an important part of language because it expands the communicative scope possible in an utterance: without spatial reference it would not be possible to describe in a clear and distinct manner something or someone not currently present. Human language can be seen as an arbitrary, abstract system of communication. It is not an inherent piece *of* the world in which the speaker and hearer are situated, but it does refer *to* that world. While reference to the real world is, to some degree, inherent in every utterance, that context does not always play a central role. The use of linguistic deixis enables a speaker to provide a clear context for a given utterance, whether that reference be one of time, space, or some other central anchor. In order to gain an understanding of how such reference may occur, it is first necessary to develop an understanding of the deictic processes that underlie such a referential act.

Deixis is a denotative process; that is, it is a semantic process that points out (denotes) some other object, space, time, or person (Diewald 1991:45). Peirce provides a classic definition of index: “An index is a sign which would, at once, lose the character which makes it a sign if its subject were removed, but would not lose that character if there were no interpretant” (1940:104). Similarly, Morris writes, “in general, an indexical sign designates what it directs attention to. An indexical sign does not characterize what it denotes (except to indicate roughly the space-time coordinates)” (1938:24). Cresswell (1996) takes a formal semantic approach to addressing indexical relationships in a broad context. He defines indexicality broadly, arguing that the index is formed from a holistic view of the world and time. Under this understanding, there are “hidden indices in relational nouns like sister [... and a] relation is needed to

analyze the possessive used with a non-relational noun in a phrase like *Adrian's pencil*"(Cresswell 1996:vii). After discussing his basic premises concerning the role of indexical relationships in propositional languages (that propositional languages tend towards more indexical content than variable binding languages), Cresswell goes into further detail about the types of relationships that may exist (relational nouns, indexical indeterminacy, contextually supplied relations, plurals, restricted quantification, and domains and anaphora). Under his theory of indexical indeterminacy, an indexical relationship can exist even if that relationship cannot be defined in a precise manner; in the sentence 'A soldier and bachelor called.' the fact that the exact referent in the world of *soldier* and *bachelor* are indeterminate does not negate the presence of an indexical relationship (Cresswell 1996:vii). After the discussion of these types of indexical relationships, Cresswell turns to an analysis of how such relationships might be treated in the syntax, attempting to show a clear link between semantic interpretations and syntactic structures.

In contrast to symbolic expressions, deictic expressions do not characterize that which they point to—they merely provide an indication of that to which is referred (Diewald 1991:45). Deictic space is an abstraction that can be seen as a “mental representation of the specific physical space in which the object goal can be located”(Sichelschmidt 1989:340).³ Others point out that deictic relationships are not necessarily spatial or physical in nature but may also be in and of themselves abstract or thematic (Canavan 1972:255). Harweg (1976) interprets the German system of tenses as a function of aspect that should be considered in its deictic context—that is to say, that tense can only be understood in relationship to the speaker. Being an abstraction does not negate the importance of deictic reference; Herrmann sees the prevalence of a system of

³ Translation from original German: “die mentale Repräsentation desjenigen physikalischen Raums in dem das Zielobjekt zu lokalisieren ist.”

context-dependent semantics as seen in human language as necessitating the questioning of any claim that there can be such a thing as an ‘intrinsic’ meaning of spatial expressions at all, thus elevating the role of deixis in creating semantic meaning (1990:117). Deictic interpretations are also contingent upon some degree of interaction between the speaker and hearer, as their understanding of the reference space and the context of the utterance must exhibit a certain degree of similarity despite the subjective nature (that is, interaction and individual dependent) of such concepts: both parties must understand the meaning of the expressions used, have a compatible concept of space, and utilize contextual information to complete the semantic interpretation (Klein 1990; Klein 1991). Context is not limited to the moment of utterance. Diewald (1991) examines deixis in the context of text types (primarily dialogue, telephone conversations, letters, and oral and written monologues), noting that deixis appears quite free and flexible, but is, at the same time, not a completely independent system (for example, deictic contexts vary based on text type).

Due to the sometimes difficult task of assigning a specific meaning to a given term, determining how and when the first of those three conditions is met presents a number of challenges. It is one thing to be able to say that there is some variable in the context that affects the semantic interpretation and quite another to be able to state with some degree of certainty what that variable is. Attempting to answer such questions as to the linguistic structure of deixis, in one form or another, is not new; Schlieben-Lange observes that time and spatial deixis had been considered in the context of part of speech analyses as contained in the *grammaire générale* of eighteenth century French and German linguists, though she notes that these pragmatic considerations fell out of favor in the nineteenth century (Schlieben-Lange 1989:76-93).

Most discussions of deixis focus either on the act of referencing or on the semantic interpretation of a given expression. Cheang (1990) takes a different approach, bringing physiological considerations to the discussion. He addresses linguistic deixis

from the perspective of natural language; while formal, logical semantics has value, he argues for the need for descriptive semantics of linguistic use. Framing a discussion of *Bedeutung* ‘meaning’ in the context of developing a semantic correlation, his central question with respect to the meaning of deictic expressions is “Welchem Zusammenhang bzw. Welcher Beziehung ist die Bedeutung der Deixis zuzuschreiben”/ “Which connection and relationship should be ascribed to the deictic meaning?” (1990:103). To answer this question, Cheang turns to developing an understanding of deictic analysis from a physiological-cognitive perspective, examining the role of the human organ ear, eye, mouth, and hand. For Cheang, the act of speaking cannot be separated from the physical systems at work in the physiological systems involved in sensory input and output (1990:199):

der deiktische Akt besteht aus eine Reihe von aktualgenetisch ausdifferenzierten Stufen elementarer Akte des Organismus: Aufmerken, Ausrichten eigener Aufmerksamkeit auf etwas Interessantes (den Richtpunkt) in der Situation, Sich-Orientieren sowie Steuern (Hinlenken) der Aufmerksamkeit des Kommunikationspartners auf den Richtpunkt. Diese einzelnen Akte bilden eine hierarchisch gestufte Einheit des deiktischen Gesamtaktes.

‘The deictic act consists of a series of actual-genetic differentiated steps of elementary acts of the organism: noticing, the focusing of attention to something interesting (the focus point) in the situation, self-orientation, and adjusting the attention of the communicative partner to the focus point. These individual acts form a hierarchical, stepped unit of the complete deictic act.’⁴

It is unclear, however, of what real value such a physiological explanation is; the production of language is indeed a physiological process, but merely stating how language is physiological without providing a means by which to utilize that physiological relationship in order to better understand the system of language use and how it can be interpreted would seem to be of only limited utility.

⁴ All translations into English are my own, unless noted.

Part of the difficulty in developing a linguistic model for the structure of deictic expressions is that there appear to be extralinguistic factors at play in some cases. The interpretation of deixis is not entirely a linguistic matter, as cross-cultural notions of space may vary and therefore influence whether an utterance is possible and, if yes, what semantic value it may have; Guugu Yimidhirr, for example, lacks the concept and terminology for left-right relationships, and the four compass directions are a relatively recent development in human communicative history (Klein 1991:80). Acknowledging that there are cultural differences with respect to deixis is an important first step to developing solid models for interpreting deictic expressions in their proper context, but a more systematic analysis of those differences is necessary for such cultural differences to be able to properly inform the analysis.

Of more immediate help is an internal examination of deixis. In an attempt to come to an understanding of the term *Verweisung* ‘pointing’ and its role, Kallmeyer (1972) undertakes an examination of referencing in written German, dividing his discussion into two broad categories: articles and pro-forms. In the former category, he includes both null forms and those graphically represented as well as a range of determiner types (possessive, demonstrative, question, and personal) in addition to the basic definite and indefinite forms. Klein, on the other hand, divides linguistic expressions of spatial deixis in many languages, including English and German, into four groups: spatial prepositions/postpositions, spatial adverbs, case inflection, and stative and dynamic spatial verbs (e.g., *kommen* ‘to come’, *stehen* ‘to stand/stay’) (Klein 1991:82). The first two categories—prepositions and adverbs—may be seen as related in that some of the literature has treated adverbs such as *hier* as empty prepositions with implied prepositional objects (for *hier*, the Origo) (Bierwisch 1988; Klein 1991). The use of these deictic categories, in conjunction with a contrastive analysis of sets of related deictic expressions, Klein argues, can lead to a more complete view of their semantic meaning; Boolean combinations of constituent characteristics enable the formulation of

appropriate definitions for the “Grundbedeutungen” ‘basic meanings’ of each expression. At the same time, Klein notes that these basic meanings are not without fault, as finding counterexamples is not difficult (Klein 1991:97). This discussion exemplifies some of the largest challenges in dealing with spatial deixis: getting a basic understanding of what is being referred to by a given expression or group of expressions is much easier than developing an understanding of underlying subtleties or differences in usage.

Traditionally, linguistic treatments of deixis in German examine one or more of three main types of deixis (spatial, temporal, or person) based around their respective basic pointing word (*Grundzeigewörter*): *hier* ‘here’, *jetzt* ‘now’, and *ich* ‘I’ (Diewald 1991:31). These three words describe the speaker and her present location and time, and can therefore serve as a contextual basis for understanding a communicative act; other deictic expressions necessarily rely on implicit or explicit reference to those basic measures. At the same time, choosing one word from each group of deictic expressions as a base exhibits a degree of arbitrariness; while the case can be made that *hier*, *jetzt*, and *ich* are the ‘default’ pointing relationships, that assumes a speaker-centric relationship and may downplay some of the ambiguities and other subtleties concerning the interpretation of deictic reference.

Categorizations, though, are a helpful tool in being able to break apart deictic expressions to search for similarities and differences, but determining the specific denotation of an individual deictic expression is at times more difficult than identifying words or phrases that are used deictically; for *hier/da/dort* (‘here’/‘there’/‘here/there’), *rechts/links* (‘right’/‘left’), *unter/über* (‘under’/‘over’) to have any comprehensible, real-world meaning, their use must refer to something else in the real world. Sometimes that real-world reference is apparent from the context of the speech act, but, in many cases, semantic interpretations may be more complex. While *vor* (‘in front of’) and *hinter* (‘behind’) are usually clearly defined, even this pair of words may have a variable interpretation at times; as Sichelschmidt points out, these words may not always take the

speaker as their reference point, but may sometimes take a different object as their reference point. Using the example of a fence, two girls standing on either side of the fence, and three observers (two on one side and one on the other), Sichelschmidt discusses how different utterances involving the same real world situation may result in different uses and interpretations of the use of the words *vor* and *hinter* in the same real-world situation. In addition, the speaker can choose to refer to a situation from his or her own perspective (primary deixis) or the perspective of another, such as the hearer (secondary deixis) (1989:343). Similarly, Herrmann develops a complex, six-variant (6H model) system to develop the understanding of how *vor/hinter* and *links/rechts* can be understood: the reference may be related to the speaker, hearer, or a third party/object and may or may not involve an additional anchor point (1990:117). Since such interpretive variance can occur within a lexical pair with relatively defined roles, examining the situation in a system where semantic relationships may be less clear, such as in the system of *hier/da/dort* in German, presents not only the standard deictic contextual challenges, but also the additional burden that results from variable definitions of internal relationships.

Not all deictic expressions contain the same strength of reference. Strong deictic words are those that maintain a demonstrative element in the denotative process; examples of these ‘prototypical’ deictic expressions would include, for example, personal pronouns and spatial and temporal adverbs (Diewald 1991:45). Some words may exhibit, at least in certain contexts, only limited deictic force. Erdmann (1978) argues that German *da* at times carries only limited spatial force, pointing out that *da* may at times be replaced with a deictically-neutral *es* ‘it/there’. While the use of *da* in (28) implies some degree of reference in the direction of some indeterminate space not present in (27), that reference is rather weak; similarly, although (28) and (29) each can carry a spatial adverb meaning in which a specific location is specified, *da* may also be used in (30) to represent an unspecified reference to generic presence (Erdmann 1978:191):

- (27) Es ist jemand an der Tür.
'There is someone at the door.'
- (28) Da ist jemand an der Tür.
'There is someone at the door.'
- (29) Hans war nicht dort.
'Hans was not there.'
- (30) Hans war nicht da.
'Hans was not there.'

Such examples provide evidence that deictic strength may vary, not only between different deictic expressions, but also in different instances of a given expression.

Language learning and acquisition inform one's understanding of deixis. A small body in the literature analyzes spatial reference from a language acquisition perspective, utilizing primarily evidence from L1 child language. The deictic process can be defined as a contextual relation that defines a pointing relationship between the *origo* and the deictic object itself (Diewald 1991:34-35). Such an understanding of deixis can be seen as being rooted in the focus on the self (the ego), something which Piaget (Piaget 1923 in Diewald 1991) views as a basic tendency in children's linguistic development; Diewald draws an explicit connection from Piaget's observations of children to the acquisition and use of deictic references, combining her analysis with Lyons' (1977) development of a theory of deictic space. In discussions of German deixis, it is often noted that *da* occurs frequently and early in L1 child speech, though many of those uses of *da* appear to serve a discourse-level function as opposed to a strictly deictic function (Ehrich 1982; Ehrich 1992; Steube 1990). That *da* is often accompanied by pointing by the child uttering the word, however, does suggest that child L1 learners do ascribe, at least in some cases, a deictic interpretation to it, even if there is only a limited ability to discriminate between different locations in the reference field. Miller and Weissenborn (1977) seek to explain the process through which children develop a concept of space. They observe that one of the key challenges in this process is the child's development of a "common referential

space by linguistic means”; deictic gestures such as pointing give way over time to an emphasis on deictic expressions and an enhanced ability to describe not only current location, but also past and future locations (1977:76-77).

Examining L2 learner tendencies can be useful in confirming or developing linguistic models for understanding deixis. Canavan makes the claim that English demonstratives present certain difficulties to L1 German speakers of L2 English, arguing that there is L1/L2 interference due to “subtle” differences despite “apparent simplicity”(1972:252). While focusing his analysis on a consideration of the use of *this* and *that*, his discussion of the difference between the German *das* and the English *that* has broader implications for spatial deixis in English and German. Under Canavan’s comparison, “one can characterize *that* with the semantic marker (SM) +distance and *das* with neutrality with regard to distance, or \pm distance”, thus providing *das* with a “more global deictic function than” *that*; he extends this analysis in passing to equate *this* with *here* (-distance) and *that* with *there* (+distance) (1972:253-254). However, he categorizes *da* and *dort* as both being semantically marked as +distance; though he does not explain this reasoning or use it in an extended discussion, it would seem to be more appropriate to consider a \pm distance marking for *da*, thus providing the “global” function he sees with *das*.

Operating from a different perspective than Canavan, Moilanen asserts that *da* is most closely associated with *hier*—the present location of the speaker, providing “a verbal signal by which the speaker can focus his own perception and that of the hearer on something within the shared perceptual field” (1978:187). Rather than providing a flexible understanding of the location referred to by *da*, Moilanen provides a flexibility to *hier*, assigning *hier* to one of two categories—a specific location or a general area; under his scheme, then, *da* belongs to the latter category of *hier*. While Moilanen makes the claim that there is an oppositional relationship between *hier* and *da*, that opposition is of a relatively limited, imprecise level when compared with the opposition that exists

between *hier* and *dort*. This analysis, while providing an explanation for both *hier-da* and *hier-dort* pairings, does not explain the ability for *da* to be used in cases where *hier* would not be.

A standard understanding of *hier* focuses on the spatial location of a speaker at a particular moment in time, but that location can be extremely broad (e.g., the world) or specific (e.g., a particular room), thus making not only speaker location, but also context, relevant to its interpretation in a given speech act (Sichelschmidt 1989:340). The boundaries of the part of the deictic space referred to by *hier* are, therefore, necessarily vague; Sichelschmidt generalizes, however, that the space referred to by *hier* increases in size, especially in the direction of the speaker, as the distance between the speaker and the hearer likewise increases (1989:340). This expansion, however, appears to fail in a number of cases: two individuals speaking about the city in which they are located might use *hier* to refer to the entire city, while a hotel receptionist taking a reservation thousands of miles away from the customer who is calling might use *hier* to refer to the hotel premises. In many circumstances, though, it may be possible to say that the number of possibilities for the size of the deictic space referenced by *hier* might increase as the distance between speaker and listener increases. If one is referring to two distinct locations, it may be possible to designate one as more “*hier*-like” than the other, but in an abstract sense what is ‘here’ is dependent not only on the given situation, but on an individual speaker’s understanding.

Although deixis has been discussed in the literature over an extended period of time, discussions are often fairly nonspecific, often focusing on abstract or philosophical issues. There are lengthy discussions of what, exactly, deixis is and how varied its occurrences can be, but, more often than not, a clear articulation of the underlying factors that lead to the development of a deictic interpretation of a given expression are lacking. While it is of value to be able to say that different cultural norms may affect semantic interpretations, it would be more useful to be able to articulate how and in what way

those differences affect deixis. It is clear that human language has a need to situate an utterance in the world through deictic reference, but it is less clear where (or when, etc.) precisely that utterance is situated. The amount of empirical data concerning deixis, particularly in English and German, is limited; the ability to utilize not only synchronic data, but also acquisition data enhances the ability to make claims as to how semantic-pragmatic meanings can be assigned by the speaker and interpreted by the hearer. It is in this way that this work differs from previous considerations of spatial reference: using empirical data not only from adult native speakers, but also from L2 language learners and child L1 learners. The goal therein is to gain insight into how language users refer to space, interpret the use of spatial adverbs, and acquire—both as L1 and L2 learners—such interpretations and usage tendencies.

CHAPTER 3 A CORPUS-BASED ANALYSIS

The corpora

An analysis of electronic corpora presents the possibility of analyzing contextual uses of the spatial adverbs under investigation as well as comparing data concerning the frequency of their use and the types of sentences in which they occur. Recognizing the limits of native speaker judgments and acknowledging the importance of looking at language acquisition in the context of actual language use, the next component of the study undertook an analysis of usage data. In an effort to gather more information about the use of *hier*, *da*, and *dort*, data were collected from a number of electronic corpora. Since one of the issues raised previously in this paper is that of the relationship of the three demonstrative adverbs to each other, examining electronic corpora enables some aspects of that relationship to be examined with the aid of frequency and usage data that can be used to undertake principled comparisons. In this study, five tagged corpora provided by the Digitales Wörterbuch der deutschen Sprache project of the Berlin-Brandenburgische Akademie der Wissenschaften were chosen for analysis. A description of the characteristics of each of these corpora can be found in Appendix C; one of the corpora, the DWDS core corpus, was subdivided into four genre areas for analysis.

Basic search patterns

In order to address this work's goal in developing an understanding of the systematic relationship between and among the three discussed adverbs, the starting point of the corpus study was an examination of the occurrences of *hier*, *da*, and *dort* both in combination with each other and in isolation. This led to the development of ten search patterns to identify matching corpus sentences, as shown in Table 1. The goal of the search patterns was to see what effect the use of one demonstrative adverb might have on the use or selection of another. Table 2 presents the results of those ten search patterns in terms of the percent of corpus sentences producing a match for the given search string

and corpus. While there is a degree of variation in the distribution of sentences matching the search pattern in the various corpora, there are also a certain number of similarities. *Dort*, with one exception, appeared less frequently than either *da* or *hier*, pointing towards *dort*, and not *da*, as perhaps being the “third” member. In addition to that data point, sentences containing both *dort* and *hier*, but not *da*, occur with far less frequently than those with *da* and *hier* but not *dort*, providing further support for this claim that *da* is a more general and more frequently-occurring adverb than *dort*. Co-occurrences of *hier*, *da*, and *dort* were, unsurprisingly, the least frequent of the search patterns, though examples were found in each of the corpora, suggesting that the three can be used in connection with each other, most often when used in the context of a three-location demonstrative function—having a third spatial adverb at one’s disposal can serve to resolve potential ambiguities about the co-locations of referents. The distribution figures are graphed by corpus in Figure 1, Figure 2, and Figure 3. The scales differ in order to show comparative differences clearly.

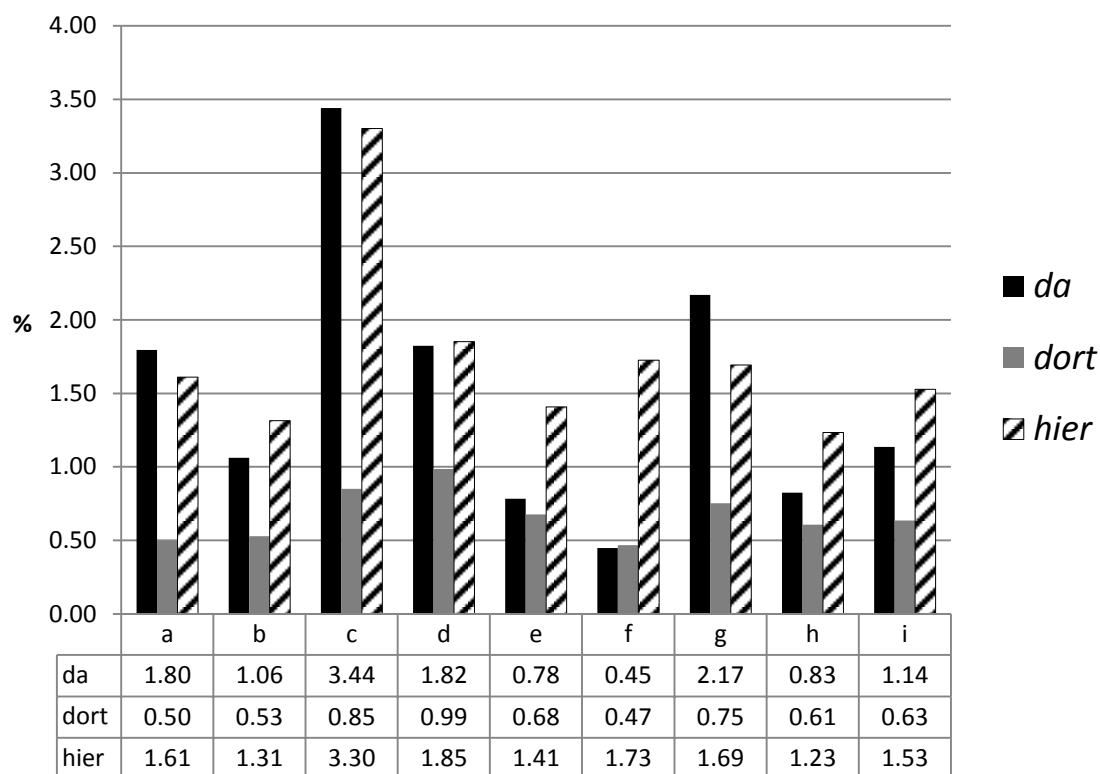
Table 1 Basic corpus search patterns for corpus sentences

<i>hier</i>	<i>da</i>	<i>dort</i>
+	-	-
-	+	-
-	-	+
+	+	+
+	+	-
+	-	+
-	+	+
+	+ or -	+ or -
+ or -	+	+ or -
+ or -	+ or -	+

Table 2 Percent of corpus sentences containing/excluding specified words

<i>Search terms</i>		<i>Searched corpus (# of sentences)</i>								
Words present in single sentence	Words not present in single sentence	Juilland-D (32,846)	DDR (396,047)	Spoken (139,633)	Die Zeit (17.7M)	DWDS Core: Technical writing (1.4M)	DWDS Core: Scientific texts (1.4M)	DWDS Core: Fiction (1.8M)	DWDS Core: newspapers (1.4M)	DWDS Core: All genres (6.0M)
<i>da</i>		1.796	1.061	3.441	1.823	0.783	0.448	2.169	0.825	1.135
<i>da</i>	<i>hier, dort</i>	1.681	0.997	3.214	1.745	0.735	0.410	2.046	0.770	1.065
<i>da, dort, hier</i>		0.003	0.002	0.007	0.002	0.002	0.001	0.004	0.001	0.002
<i>dort</i>		0.496	0.527	0.851	0.985	0.676	0.467	0.753	0.606	0.634
<i>dort</i>	<i>da, hier</i>	0.411	0.475	0.731	0.903	0.636	0.403	0.659	0.565	0.573
<i>hier</i>		1.611	1.314	3.301	1.851	1.407	1.725	1.693	1.234	1.527
<i>hier</i>	<i>da, dort</i>	1.498	1.233	3.085	1.736	1.348	1.649	1.563	1.169	1.441
<i>da, dort</i>	<i>hier</i>	0.043	0.017	0.062	0.021	0.013	0.012	0.041	0.015	0.022
<i>dort, hier</i>	<i>da</i>	0.040	0.034	0.051	0.059	0.025	0.050	0.048	0.025	0.038
<i>hier, da</i>	<i>dort</i>	0.070	0.046	0.158	0.054	0.033	0.025	0.077	0.040	0.046

% of sentences containing *da*, *dort*, and *hier*, by corpus



- a Juilland-D
- b DDR
- c Spoken
- d Die Zeit
- e Technical writing (core)
- f Scientific texts (core)
- g Fiction (core)
- h newspapers (core)
- I Entire DWDS core

Figure 1 Sentences containing *da*, *dort*, and *hier* in each corpus

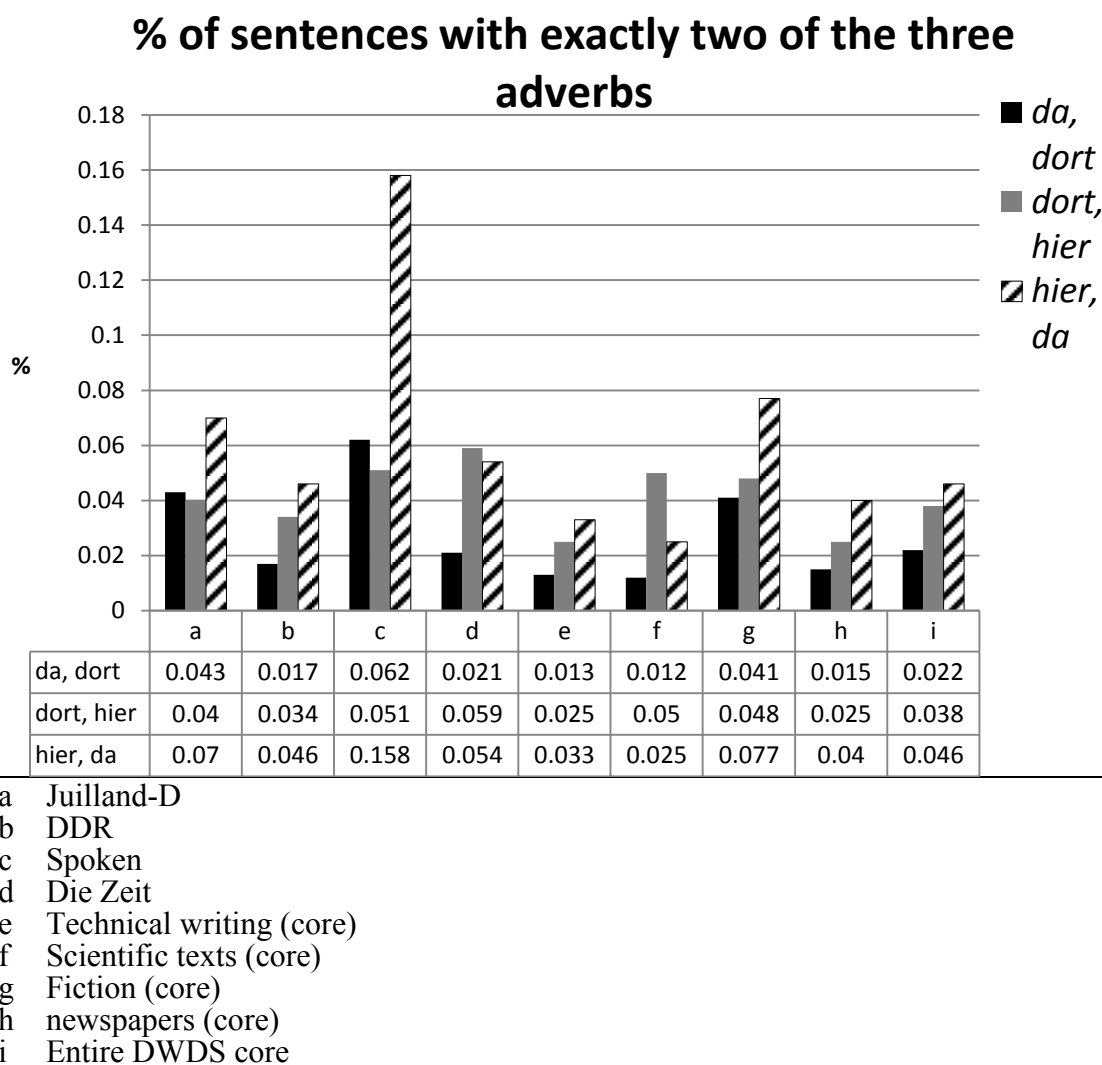


Figure 2 Sentences containing exactly two of the three adverbs

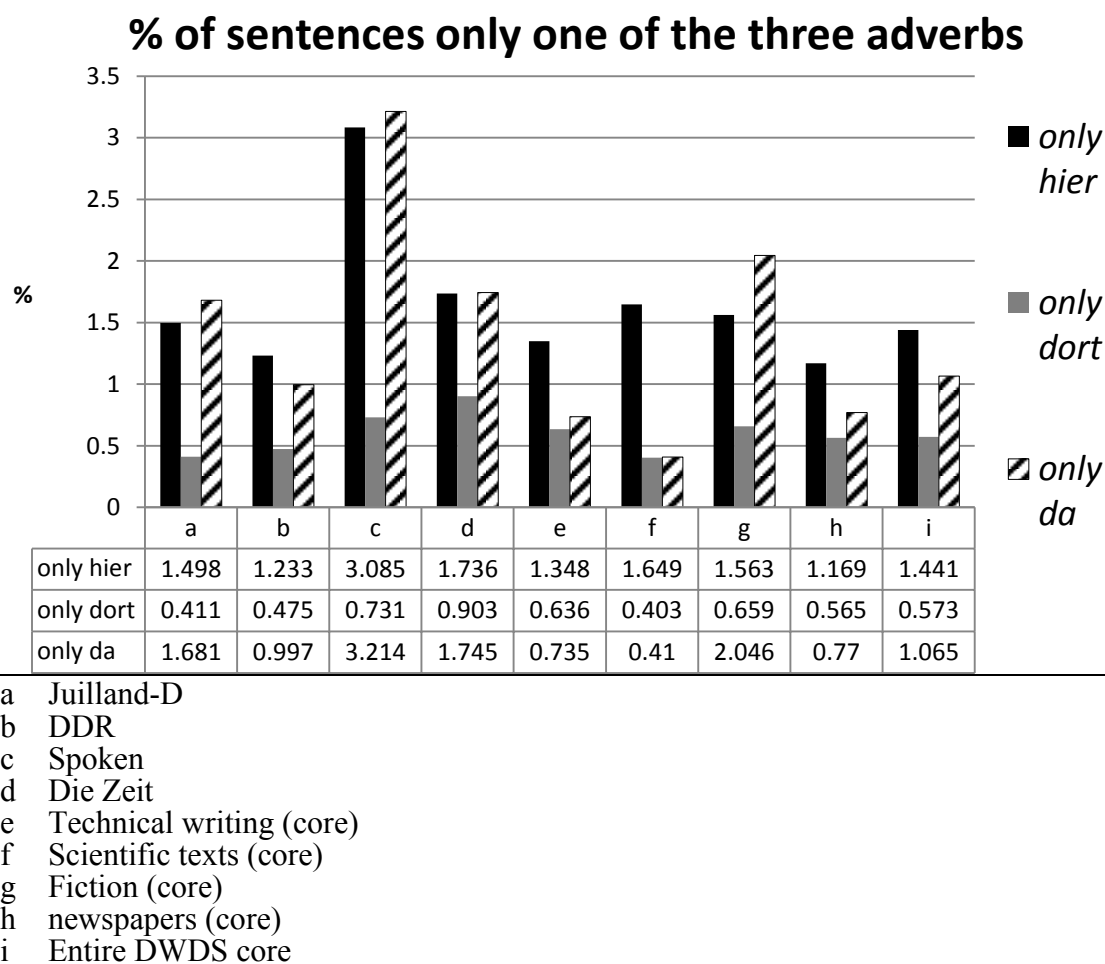


Figure 3 Sentences containing only one of the three adverbs

Table 3 Ratio of corpus sentences containing *da* to corpus sentences containing/excluding specified words

Search terms		Searched corpus											
Words present in single sentence	Words not present in single sentence	range	median	mean	Juilland-D	DDR	Spoken	Die Zeit (newspaper)	DWDS Core: Technical writing	DWDS Core: Scientific texts	DWDS Core: Fiction	DWDS Core: newspapers	DWDS Core: All genres
<i>da</i>		0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<i>da</i>	<i>hier, dort</i>	0.05	1.07	1.07	1.07	1.06	1.07	1.04	1.06	1.09	1.06	1.07	1.07
<i>da, dort, hier</i>		608.4	545.7	606.7	590.0	700.5	480.5	808.2	493.5	344.6	544.0	953.0	545.7
<i>dort</i>		3.08	1.85	2.19	3.62	2.01	4.04	1.85	1.16	0.96	2.88	1.36	1.79
<i>dort</i>	<i>da, hier</i>	3.60	2.02	2.49	4.37	2.23	4.71	2.02	1.23	1.11	3.29	1.46	1.98
<i>hier</i>		1.02	0.81	0.83	1.12	0.81	1.04	0.98	0.56	0.26	1.28	0.67	0.74
<i>hier</i>	<i>da, dort</i>	1.12	0.86	0.89	1.20	0.86	1.12	1.05	0.58	0.27	1.39	0.71	0.79
<i>da dort</i>	<i>hier</i>	47.72	55.87	55.82	42.14	62.73	55.87	84.87	59.33	37.15	52.29	56.06	51.93
<i>dort, hier</i>	<i>da</i>	58.74	31.37	35.99	45.38	31.37	67.68	31.01	31.29	8.94	45.23	32.96	30.02
<i>hier, da</i>	<i>dort</i>	15.74	23.91	24.39	25.65	23.09	21.74	33.62	23.91	17.88	28.08	20.87	24.66

Table 3 presents similar information as contained in Table 2, with the primary difference being that the data are presented as ratios normalized against a baseline of the number of sentences in which *da* occurs (in isolation or with one or more of *hier* and *dort*). A ratio of less than one indicates that that search pattern yields more sentence matches than a search pattern for all sentences containing *da*; a ratio of greater than one indicates that there were more sentences containing *da* than there were sentences matching the given search pattern. The normalization of the data to a *da* baseline makes it possible to spot similarities and differences across the different corpora with greater ease.

Comparative use of each adverb

In all but the scientific text subsection of the DWDS core corpus, there are fewer overall occurrences of *dort* than of *da* (and in the one corpus exception, the ratio, at .96, is fairly close to an even distribution). This suggests that *da* may indeed have a flexible use, but also that it may be used as a stand-in for *dort*—that is, to indicate a location away from the speaker/hearer interaction. Flexibility indicates only the ability to function in a certain way; a flexible use and/or interpretation does not exclude the possibility that one use may dominate over the other. With respect to the scientific texts sub-corpus, it may be that the imprecision in *da* is something that a writer of such a text wishes to avoid. Also contributing to the lower use of *da* (although it is almost on par with that of *dort*) is that *da* is used in some set expressions that may appear less in scientific writing than in less formal texts.

The comparison between *hier* and *da* is more varied, with *hier* sometimes, but not always, occurring in more sentences than *dort*; the differences are less stark than the contrast seen between *dort* and *da*. These differences provide further evidence that *da* may be used more often as an alternative to *dort* than as an alternative to *hier*. The ratio of *da* to *hier* is never more than 1.28, while the ratio of *da* to *dort* reaches 4.04 in the

spoken language corpus. In that corpus, the use of *da* and *hier* are roughly even, with a ratio of 1.04 *da*::*hier*.

Adverbial co-occurrences

One of the advantages having a set of three primary spatial adverbs has over having only two is the ability to differentiate between multiple locations with relative facility. Therefore, an examination of how the target adverbs are used with and without each other can reveal tendencies about how their use is connected. Looking at the corpus sentences containing two of the three adverbs in any order (the three pairs *da/dort*; *dort/hier*; and *hier/dai*), *hier/da* was the most frequent in seven of the nine corpora (Figure 2). In the spoken language corpus, the *hier/da* pair was more than twice as frequent as that pairing in that corpus or any of the other eight corpora. Since the other corpora consist of primarily written documents, this result suggests that *da* may have an especially strong tendency to function as a counterpart to *hier* in spoken speech. In one of the corpora (the Die Zeit newspaper corpus) where *hier/da* is not the most frequent pair, it is only slightly less frequent than *hier/dort*. A more notable difference was seen in the sub-corpus of scientific/technical texts, where the rate of *hier/da* was half that of *hier/dort*; this contrast may be the result of the need in technical writing to be more precise with the description of locations; since *da* can sometimes be interpreted to mean different locations, there may be a tendency in scientific writing to minimize the use of *da*. While Figure 2 shows how these target spatial adverbs are used in consort with each other, Figure 3 shows the frequency data for corpus sentences containing one and only one of the adverbs. Sentences with only *dort* are the least common in all corpora, although the degree to which they are used less varies. Only *da* is the most frequent in four of the nine corpora/subcorpora, while only *hier* is the most frequent in the other five. The use of *da* as the sole spatial adverb more frequently than the use of *dort* as the sole

spatial adverb in a sentence continues to support an understanding of *da* as the primary counterpart to *hier*.

In all cases there are more co-occurrences of *hier* and *da* than there are of *dort* and *da*. Assuming that the majority of these instances are contrastive examples, the more frequent *hier-da* pairing would seem to provide evidence that *da* behaves more often as a *dort* variant than it does as a *hier* variant, at least when used contrastively: the ratio differences could be explained in part due to different usage patterns in demonstrating contrastive location (i.e., *da* would have a tendency to be used to indicate a not-here/*dort* location in sentences where it co-occurs with *hier*). In order to determine to what extent the three adverbs exist in a tripartite system, it is useful to examine the relatively uncommon situations in which *hier*, *da*, and *dort* occur together in the same sentence. Examining the relatively infrequent cases where these three words are found in the same sentence to determine what and how many locations are identified by the adverbs can aid in understanding the system's function. In some cases, each of *hier*, *da*, and *dort* quite clearly refer to distinct locations, either physical or abstract:

- (31) Aber alles in Zusammenhang mit Pippi hat sich über die Jahre so verändert, heute taucht sie hier_{Loc1} als Puppe und dort_{Loc2} als Bild und da_{Loc3} als Filmfigur auf. (Die Zeit, 46/2007)

‘But everything in connection with Pippi has changed so much [that] today she appears here as a doll and there as a picture and there as a movie character.’

- (32) Das Buch kommt denen entgegen, die gern hier_{Loc1} und da_{Loc2} und dort_{Loc3} naschen ... (Die Zeit, 49/2004)

‘The book goes against those who prefer to nibble from here, there, and there.’

- (33) Wenn es dann losgeht, jammert jeder: da_{Loc1} nicht, dort_{Loc2} nicht und hier_{Loc3} nicht. (Die Zeit, 6/2003)

‘When that begins, everyone whines: not here/there, not there, and not here.’

- (34) Dort_{Loc1} lag der Wasservogel, hier_{Loc2} das Pferd und da_{Loc3} der kleine Löwenmensch (Die Zeit, 1/2003)

‘There lay the waterfowl, here the horse, and there the small lion man’

In each of (25)-(28), there appears to be clear reference to three abstract and/or physical locations. In English, one would need to repeat either *here* or *there*, perhaps using a hand gesture in spoken speech or adding an additional word such as *over* to one of the adverbs; the use of *da* in German provides a third term to use to identify a place apart from both *hier* and *dort*. There appears to be, however, a relatively flexible adverb order: each may appear in either the first, second, or final reference position. There is also a locational flexibility shown in these examples. While the location identified by *da* in these examples is often unspecified, it seems that in sentences involving all three of these adverbs, the locations identified by *hier* and *dort*, when used in the abstract, may be similarly abstract. *Da* does not appear to be unique in its ability to be used to refer to unspecified locations. In (25), for example, there seems to be little information provided by the choice of *hier* to refer to an example of Pippi as a doll, *dort* as a picture, and *da* in film; more important, it seems, is the ability to create three distinct—if unspecific—locations to which one can refer. This type of joint usage provides further support to the idea that *hier*, *da*, and *dort* do exist in a tripartite system where direct mappings to speaker location and a location other than speaker are insufficient.

While it is sometimes clear that each of the three adverbs used together refers to a different location, other examples involving *hier*, *da*, and *dort* present more of a challenge in determining the number of locations referenced, as in (35):

- (35) Und was sie da_{Loc2} alles entdeckt haben: Cafés und Jazzkeller, Antiquariate und gut bestückte Geschäfte, die voller Devisenhunger bis spät in den Abend ihre Türen geöffnet hatten aber wer sollte dort_{Loc2/Loc3} sein Geld ausgeben, wenn doch alle hier_{Loc1} saßen? (Zeit 51/2002)

‘And all that they found there: cafés and jazz bars; antique stores and well-stocked stores, which, eager for foreign currency, stayed open until late in the evening. But who was to spend money there, if they all stayed here (*in their hotels*)?’

In (29), it is unclear whether *da* and *dort* refer to the same location, but they are clearly distinct from the location identified by *hier*, each rather clearly referring to a location somewhere outside of the hotel. The two words, though, do not appear to be completely interchangeable. While one could see *da* and *dort* as being referentially equivalent, referring to that which is not here—not at the hotel—*da* seems to take a broader meaning than does *dort*. *Dort* (the shops) could perhaps be seen as a subset of the location identified by *da* (the city—outside of the hotel); *da* might be seen, then, as indicating a broad location which can be further specified through the use of *dort*. These locations remain semi-abstractions and the choice of adverb may vary.

In language use, one is not limited to describing three locations. When there are more than three locations to be referenced, it is necessary in German, as in English, to repeat one of the already used adverbs. *Hier*, *da*, and *dort* can all be used in place of the fourth location, with the choice of the fourth adverb generally being identical to the first appearance in the sentence:

- (36) Da_{Loc1} und dort_{Loc2} gibt es ein paar Abgründe, hier_{Loc3} und da_{Loc4} ein paar Leute, die außer dem Internet nichts haben. (Die Zeit, 9/2005)

‘Here and there there are a few abysses; here and there a few people, who except for the Internet, have nothing.’

- (37) Das Kind stellt Gefäße unter die Rinnsale, aus Plastik, aus Glas, aus Metall, es trommelt hier_{Loc1}, und da_{Loc2} klatscht es, dort_{Loc3} prasselt es, und hier_{Loc4} zirpt es, die Wassermusik füllt das Haus. (Die Zeit, 7/2005)

‘The child places containers under the gutters—plastic, glass, and metal—it drums here, there it claps, it crackles there, and here it chirps; the water music fills the house.’

- (38) Dort_{Loc1} tobten seine Mineure in den vorgetriebenen Stollen da_{Loc2} brach das Wasser ein, dort_{Loc3} mußte der Fels durch Futtermauern gestützt, hier_{Loc4} wieder gesprengt werden. (Die Zeit, 26/2001)

‘There his miners rioted in the tunnels, there the water broke in, there the rock had to be held up by a supporting wall, here blasted again.’

When more than three adverbs are required to refer to abstract or physical locations, the default choice to describe a fourth location appears to be the adverb that has been used farthest in the past in the utterance, perhaps in an effort to draw attention to the introduction of a four locative reference.

The ability of all three of the adverbs to function as the fourth distinct location demonstrates that each adverb may exhibit some degree of semantic underspecification. This underspecification explains the possibility that *da* can be used in multiple manners and can at times be used in a manner more flexible than that of *hier* or *dort*. Despite this flexibility, the corpus analysis presents evidence that indicates that *da* has *dort*-like contrastive tendencies with respect to *hier*. At the same time, it must be noted that an analysis of corpus co-occurrences does identify other evidence that *da* does exhibit characteristics supporting some understanding as unspecified. That is to say, *dort* does seem to give clearer locative information than does *da*, particularly when *da* is used in isolation. However, *dort* is not used as frequently as *da*, even when there is a desire to make a spatial reference to a non-speaker location. Other contextual clues, as well as the contrast with the use of *hier*, can provide additional information to enable locative disambiguation. The theoretical possibility to be used to indicate either a speaker or non-speaker location does not mean that *da* is used equally frequently to refer to both general location possibilities. (Indeed, the corpus evidence suggests an imbalance in usage.) Having examined this usage data from the corpora, to see how the corpus data compare with location interpretations and grammaticality judgments of both L2 learners of German and native speakers, this work will now shift its focus to empirical survey data.

The focus in the survey data is not on language production, but rather on how the target adverbs are understood and interpreted.

CHAPTER 4 EVIDENCE FROM L2 LEARNERS

Pilot study

A small pilot study focusing on elementary and intermediate L2 learners of German and a small native speaker control group was used to inform the implementation of a future expanded study. In order to explore the theories presented in the extant literature that seek to explain the demonstrative adverb systems in English and German, a study was conducted using learner and native speaker data to both assess the validity of those theoretical claims and attempt a consideration of the acquisition of the semantics of the German demonstratives *hier*, *da*, and *dort* by L2 learners of German. Initially, the study set out to investigate whether or not learners of German are able to acquire the semantic broadness of the use of *da* (due to the non-deictic possibility) or whether they map its meaning to English *there* or *here*. In addition, the study sought to determine learners' determination of the appropriateness of the use of *hier*, *dort*, and *da* given certain situational contexts. Basing itself on the theories of Lenz, Blühdorn, and Ehrlich, the study asked the following as its principle questions:

- (39) How do L2 learners of German interpret the deictic and anaphoric use of the demonstrative adverbials *hier* ('here'), *dort* ('there'), and *da* ('here'/'there') in German?
- (40) Are the L1 English speakers learning German as an L2 able to acquire the pragmatics of the additional demonstrative adverb found in German?

After the initial data were gathered, additional questions proved worthy of consideration. Due to both the internal inconsistency of the native speaker data and the apparent conflict with the theory discussed in the previous section, these additional questions were posed:

- (41) What semantic interpretations do L2 learners and native speakers assign to the anaphoric use of demonstrative adverbials *hier* ('here'), *dort* ('there'), and *da* ('here'/'there') in German?
 - What role does the speaker's location have for this interpretation?
 - Do learners exhibit evidence for their acquisition?

- Do learners show evidence for a purely non-deictic interpretation of *da*?
 - Do individual participants show similar interpretations?
- (42) Are the native speaker data consistent with the literature?
- To what extent do native speakers assign a non-deictic or possibly non-deictic interpretation to *da*?
 - Do individual participants show similar interpretations?

Participants

Forty-two participants took part in the two tasks. A group of native speaker controls (N=8) participated alongside a group of elementary (first and second semester college level) L2 learners (N=18) and a group of intermediate (third and fourth semester) L2 learners (N=16). The L2 participants were enrolled in German courses at the University of Iowa, while the native speakers were primarily teaching assistants or faculty members in the University of Iowa Department of German.

Pilot Task 1: Acceptability judgments

Though both tasks were included in a single instrument, the learner tasks differed in scope and purpose and will thus be considered separately. The first type of item was a forced choice grammaticality task focusing on deictic uses of the demonstrative adverbs. Participants were presented with a brief written situational context followed by four brief statements or questions, three utilizing demonstrative adverbials (*hier*, *da*, *dort*) and one additional phrase as a distracter that might be said by a speaker in that context. For each statement or question, participants were asked to select whether or not the given utterance is possible or not possible given the context, as in (11):

- (43) Two colleagues are chatting in the copy room at work. One of them wants to know if their boss, Martina, is in the office. He asks,
- a. Ist Martina hier? ☐ possible ☐ not possible *Is Martina here?*
- b. Ist Martina dort? ☐ possible ☐ not possible *Is Martina there?*

c. Ist Martina da? ☐ possible ☐ not possible *Is Martina
here/there?*

d. Ist Martina krank? ☐ possible ☐ not possible *Is Martina sick?
(distracter)*

There were six situations in the first task and three demonstrative choices for each item, for a total of 18 items analyzed. The task addresses research questions (4) and (6).

Pilot Task 2: Location assignments

Pilot Task 2 consisted of a forced choice semantic interpretation task.

Participants were presented with a speaker's statement in German and asked to determine if the speaker is located definitely in the same place as indicated by the demonstrative, definitely somewhere else, or if it is impossible to determine the speaker's location.

There were twelve items in total, with four each from *hier*, *dort*, and *da*. An example of a question involving *da* follows:

- (44) Martina says, „Ich bin in Freiburg geboren, und ich bin da auch aufgewachsen.“
Where is Martina right now? Martina says, “I was born in Freiburg, and I grew up *da*.”
☐ Freiburg ☐ somewhere else ☐ impossible to tell

These items sought to address learners' interpretation of the relevance of the location of the speaker for semantic processing and initially were intended to determine whether or not learners demonstrate evidence for the acquisition of non-deictic *da*, with its divergence from the English L1 situation. Due to the aforementioned inconsistency in the native speaker and learner data, the task's aims were revised to reflect a desire to investigate the significance of speaker location for anaphoric *da*, as expressed in research questions (4) and (6).

Data and results

Pilot Task 1: Acceptability judgments

The results from the first task are presented by individual situation in Table 4. Though there was considerable variability within each group with respect to acceptance of the three adverbs, there was a higher acceptance of *da* with the native speaker groups than with the two learner groups. In five of the situations, 100% of the native speakers indicated that *da* was acceptable, while in no situation did 100% of either learner group do so. The native speaker acceptance of *da* in so many of the situations (the two situations without 100% NS acceptance of *da* still had 40% and 50% acceptance) supports the theory that deictic *da* may be used in both heterodeictic and autodeictic situations. Conversely, none of the native speakers accepted *dort* in any of four of the seven situations; again, neither learner group had such a result for any situation. Although there was variation within the native speaker group, in each of the six situations there was a choice that received a 100% acceptability rating from the native speaker group (a single choice in five situations—four of *da* and one of *hier*—and both *hier* and *da* in one situation).

The L2 groups displayed considerably more variability than did the NS group, though that variability is remarkably consistent between the two learner groups. The lowest acceptance rate for any adverb for the elementary group was 17.6% and 18.2% for the intermediate group. In situations 1, 2, and 3, each of the two learner groups showed greater than 90% acceptances of *hier*. Despite this near learner unanimity, only 25% of the native speakers accepted *hier* only in situation 1 and only 37.5% did so in situation 2; in situation 3, the acceptance rate is near the NS 100% rate, but the learner groups under-accepted *da*. There does seem to be a gap in L2 knowledge of *da*, but only a single participant, one of the elementary students, rejected all of the uses of *da*. Even when the learners are sure that one form is acceptable, the data suggest that there is a degree of

uncertainty with regards to the possibility of the other forms; learners may recognize that there is a difference between English and German, but may not be able to determine the precise nature of that difference.

Pilot Task 2: Location assignments

As shown in Figure 1, in interpreting the semantic interpretation of prompts involving *hier*, each group had the highest selection rate for the demonstrative referring to the speaker's location at time of utterance. Native speakers uniformly selected *hier* to refer to speaker location. L2 performance was also strong (66% elementary, 75% intermediate), with the remainder of the selections almost perfectly split between 'somewhere else' and 'impossible to tell'. These data are consistent with *hier* as referring to a location that is the same as that of the speaker. Figure 4 presents the results of the speaker location interpretations for sentences utilizing *dort*. While 94% of the native speakers selected 'somewhere else', as would be expected if *dort* indicates a location where the speaker is not located at the moment of speech, the learner data are a puzzle. While 64% of the elementary learners selected the native-speaker norm 'somewhere else', only 27% of the students in the intermediate group did so, 41% selecting 'impossible to tell'. Though the intermediate learners chose 'speaker location' at a rate slightly higher than the elementary learners did, the gap that seems to account for the overall difference is in this latter selection. One possible explanation for this seeming drop in performance from elementary to intermediate level learners is that the intermediate learners may have applied the locational flexibility of *da* to *dort*, overgeneralizing their acquired knowledge to view *dort* as having the same lack of specificity as does *da*.

Table 4 Pilot Task 1: Individual item analysis: acceptance rates in percent

	1. A magazine salesman knocks on the front door of a home. A child answers the door. The salesman asks, Ist der Papa X? ('Is your dad X')?			2. A father arrives at home. He sees his daughter in the kitchen, greets her, and asks, Ist die Mama x? ('Is Mom X?')			3. Two colleagues are chatting in the copy room at work. One of them wants to know if their boss, Martina, is in the office. He asks, Ist Martina X? (Is Martina X?)		
	hier	dort	da	hier	dort	da	hier	dort	da
Elementary	94.1	41.2	35.3	100.0	23.5	35.3	94.1	47.1	35.3
Intermediate	100.0	31.3	25.0	100.0	37.5	31.3	93.8	31.3	25.0
NS	25.0	0.0	100.0	37.5	0.0	100.0	100.0	0.0	100.0
						0			0
	4. Paul likes to watch TV in bed. His friend Peter prefers to read in bed. Frank, a mutual friend, is describing these habits to someone else and says, Peter liest im Bett und Paul sieht X fern. (Paul reads in bed and Paul watches television X.)			5. Marianne and Johannes are looking for a new home. Having an office in her home is important to Marianne, and she tells her real estate agent that she needs such a room so that she can write, saying, X will ich schreiben. (X I want to write.)			6. A real estate agent is showing a home to Marianne and Johannes. Johannes is standing in the home's kitchen, admiring it, and calls out to his wife, Ich könnte X toll kochen. (I could cook well X.)		
	hier	dort	da	hier	dort	da	hier	dort	da
Elementary	22.2	83.3	66.7	22.2	83.3	66.7	22.2	83.3	66.7
Intermediate	25.0	56.3	62.5	25.0	56.3	62.5	25.0	56.3	62.5
NS	0.0	37.5	50.0	0.0	37.5	50.0	0.0	37.5	50.0
	7. Marianne and Johannes liked the house they saw and want to live there. The next day at work, Marianne tells a colleague about it, saying, Wir wollen X wohnen. (We want to live X.)								
	hier	dort	da						
Elementary	16.7	94.4	72.2						
Intermediate	31.3	87.5	87.5						
NS	0.0	100.0	100.0						

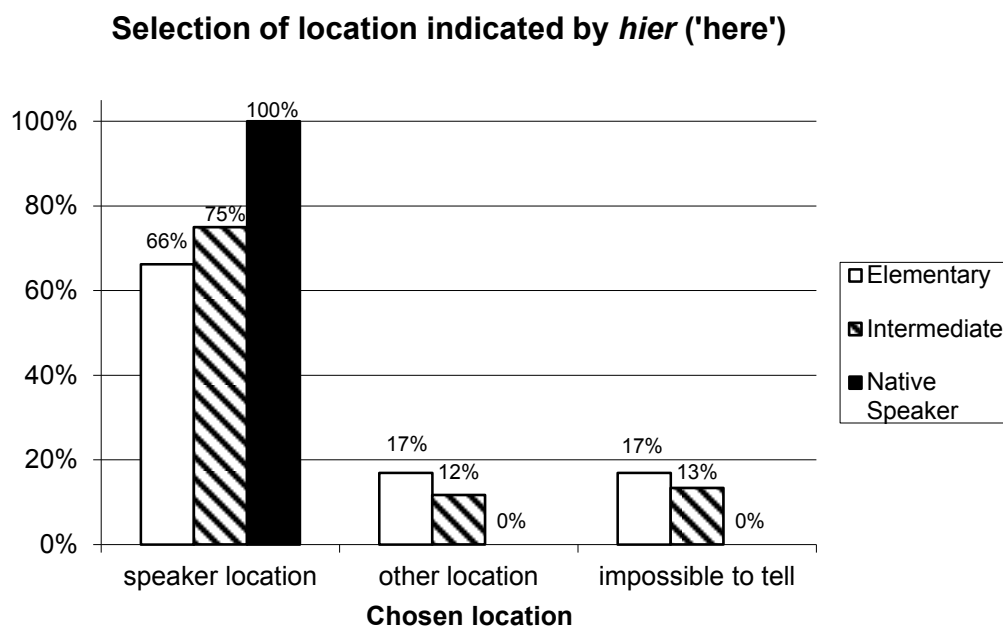


Figure 4 Pilot Task 2: Analysis of the semantic interpretations of prompts involving *hier*

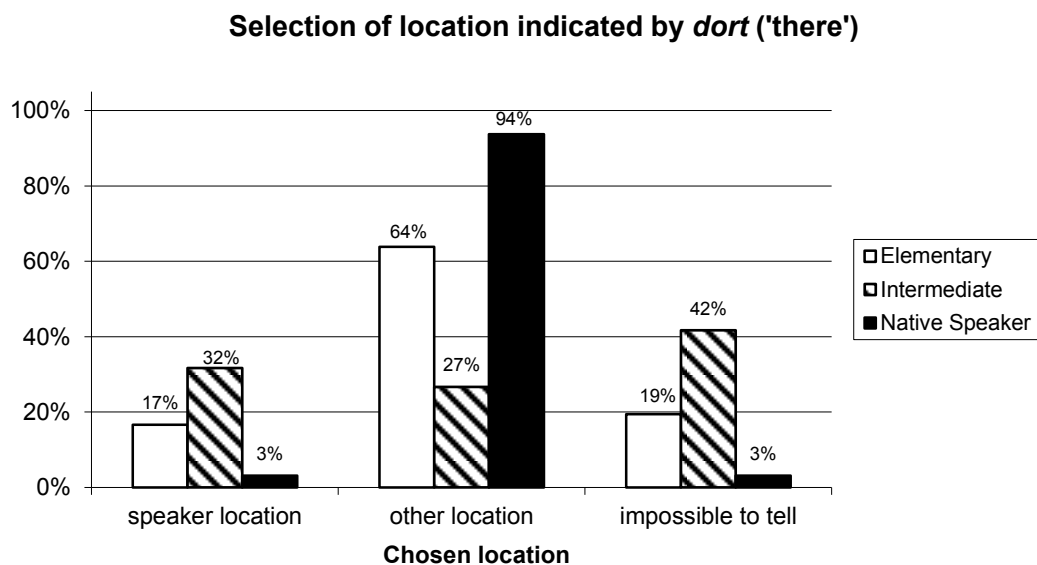


Figure 5 Pilot Task 2: Analysis of the semantic interpretations of prompts involving *dort*

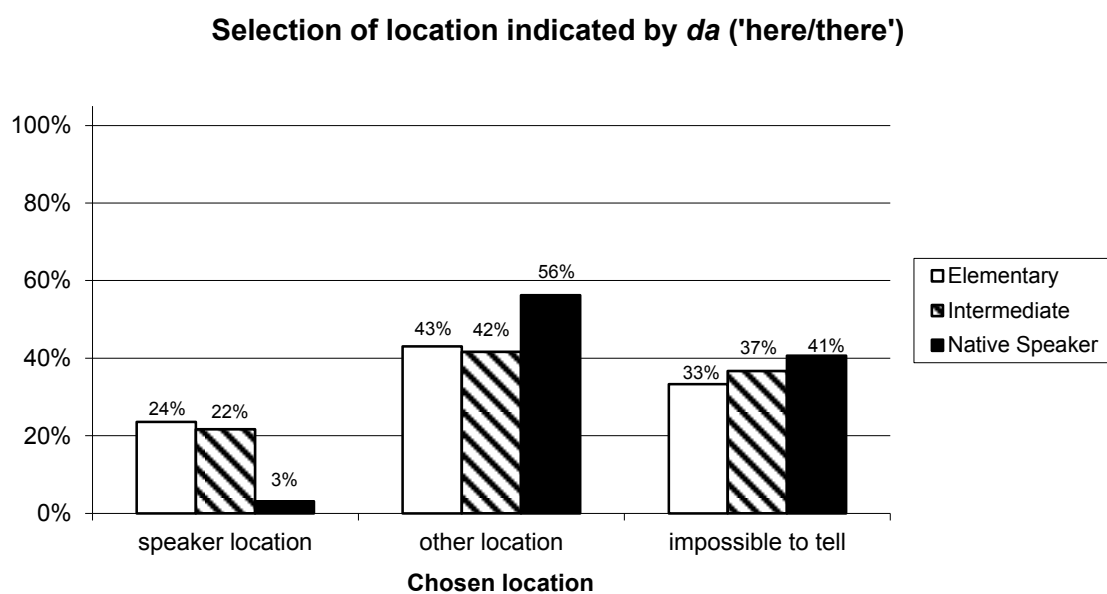


Figure 6 Pilot Task 2: Analysis of the semantic interpretations of prompts involving *da*

Table 5 Pilot Task 2: Individual data: frequency of participant location selections (in percent)

# of items in which choice was selected	hier		somewhere else		impossible to tell		dort		somewhere else		impossible to tell		da		somewhere else		impossible to tell	
	speaker location	hier	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location	speaker location
Elementary (N=18)																		
0/4	0.0	50.0	61.1	50.0	5.6	55.6	33.3	22.2	33.3	22.2	33.3	33.3	33.3	22.2	33.3	33.3	33.3	33.3
1/4	27.8	38.9	16.7	38.9	16.7	16.7	38.9	27.8	38.9	27.8	16.7	38.9	27.8	27.8	33.3	33.3	33.3	33.3
2/4	16.7	5.6	16.7	5.6	27.8	22.2	5.6	27.8	27.8	22.2	22.2	27.8	27.8	22.2	5.6	5.6	5.6	5.6
3/4	22.2	5.6	5.6	5.6	16.7	5.6	5.6	16.7	16.7	5.6	5.6	0.0	0.0	11.1	22.2	22.2	22.2	22.2
4/4	33.3	0.0	0.0	0.0	33.3	0.0	0.0	33.3	33.3	0.0	0.0	0.0	0.0	16.7	5.6	5.6	5.6	5.6
Intermediate (N=16)																		
0/4	6.3	68.8	62.5	31.3	43.8	18.8	31.3	18.8	37.5	18.8	25.0	37.5	18.8	18.8	25.0	25.0	25.0	25.0
1/4	6.3	18.8	25.0	31.3	31.3	31.3	31.3	31.3	43.8	31.3	31.3	43.8	31.3	31.3	37.5	37.5	37.5	37.5
2/4	18.8	12.5	12.5	25.0	12.5	25.0	25.0	12.5	18.8	31.3	25.0	18.8	31.3	31.3	18.8	18.8	18.8	18.8
3/4	37.5	0.0	0.0	12.5	6.3	25.0	12.5	6.3	0.0	12.5	25.0	0.0	12.5	12.5	12.5	12.5	12.5	12.5
4/4	31.3	0.0	0.0	0.0	6.3	0.0	0.0	6.3	0.0	0.0	0.0	0.0	6.3	6.3	6.3	6.3	6.3	6.3
Native Speaker (N=8)																		
0/4	0	100	100	87.5	0	87.5	87.5	0	87.5	25.0	37.5	87.5	25.0	25.0	37.5	37.5	37.5	37.5
1/4	0	0	0	12.5	0	12.5	12.5	0	12.5	12.5	25.0	12.5	12.5	12.5	25.0	25.0	25.0	25.0
2/4	0	0	0	0	0	0	0	0	0	0	0	0	0	12.5	0	0	0	0
3/4	0	0	0	0	25.0	0	0	25.0	0	0	0	0	0	12.5	12.5	12.5	12.5	12.5
4/4	100	0	0	0	75.0	0	0	75.0	0	0	0	0	0	25.0	25.0	25.0	25.0	25.0

An analysis of anaphoric *da* as being purely anaphoric and neutral would suggest that speaker location is irrelevant and thus the use of *da* would not provide any information about where a given speaker was at the time of utterance. While the expected native speaker interpretation clearly stood out with *hier* and *dort*, the interpretations of the place indicated by *da* in reference to the speaker's location at time of utterance were less uniform. As shown in Figure 3, the only uniformity in the native speaker group was the clear dispreference for the use of *da* to refer to the location of the speaker, with only 'speaker location' selected only 3% of the time in the native speaker group. Each of the three groups selected 'somewhere else' with the greatest frequency, though the differences between its selection and the selection of 'impossible to tell' were not extreme. Native speakers did have a slightly higher selection of 'impossible to tell' than either of the learner groups, but that may stem more from the rejection of the use of an autodeictic use of anaphoric *da* than from the strong sense of ambiguity that might be expected based on the theory.

Examining the data for the individual participants' selections of adverbial reference can provide some insight into the overall results. With each of *hier*, *dort*, and *da*, there were four opportunities to make a selection of the location indicated by the demonstrative. Table 5 looks at the data from each of the three adverbs and presents the percentage frequency of participants in each of the three groups who selected one of the three location categories 0/4, 1/4, 2/4, 3/4, or 4/4 times. The boldface numbers represent the numbers that the theory would have predicted to be at or near 100%.

In looking at *hier* and *dort*, the native speakers show strong consistency as a whole; with *dort*, the two speakers without 4/4 selection of 'somewhere else', each chose

a different response in only one item. The learners, while less uniform, also showed strong coherence in the selection of locations indicated by *hier* and *dort*. Though only 33.3% of the elementary participants and 31.3% of the intermediate participants correctly selected the speaker location with *hier* in all four instances, each participant selected the expected, native-like response at least once, with 55.5% of the elementary group selecting the speaker location in at least three of the four instances and 68.8% of the intermediate group doing so. With *hier*, 50.0% of the elementary group never selected ‘somewhere else’ and 61.1% never chose ‘impossible to tell; similarly, 69.8% of the intermediate group never answered ‘somewhere else’ and 62.5% never selected ‘impossible to tell’. The interpretations of *dort* presented a greater challenge to the learners, but the native speakers also showed less uniformity with *dort* than with *hier*. The elementary group’s more native-like performance with *dort* than the intermediate learners is also borne out by the individual data: while one-third of the elementary learners selected ‘somewhere else’ in all four *dort* items, none of the intermediate learners did so. The difference between the elementary and intermediate groups appears to be more than the result of a few outliers. As previously speculated, the intermediate learners may be overgeneralizing their newfound knowledge of the locational ambiguity of *da* and applying it to a larger aspect of the system than appropriate. A factor improving the surface level accuracy of the elementary group might be that the elementary learners are utilizing English-German translational pairings, without necessarily understanding the semantic implications of their choices or the system that underlies them. While it may be that the elementary learners have a more native-like understanding of *dort* than do the intermediate learners, that seems somewhat unlikely,

and it may be that the task is not an accurate representation of performance in a very specific realm.

As is to be expected based on the group performance data, the individual interpretations of *da* were varied. Again, the most striking difference in native speaker and learner performance is in the selection of an autodeictic referent. Approximately one-third (33.3% elementary, 37.5% intermediate) of the learners never selected the location of the speaker to be the same as the location referred to by *da* (while all but one native speaker did so). With respect to the selection of the theoretically preferred choice—‘impossible to tell’—25% of the native speakers always chose that response with *da*, while only a single participant in each of the elementary and intermediate groups (5.6% and 6.3% respectively) did so. Despite the overall spread of choices, a neutral interpretation of a truly anaphoric, non-deictic *da* does seem to be assigned by some of the native speakers to all situations; there does, though, appear to be situational factors that lead *da* to be associated with non-neutral interpretations, at least in some cases. *Da* does seem—at times—to at least suggest a likely location, at least for some native speakers. Still, though, both the individual data and the overall group results indicate a contrast between the interpretive certainty involving *hier* and *dort* and the mixed interpretations with *da*.

Interpreting the L2 data

While introductory German textbooks generally introduce *hier* and *dort* as lexical items in vocabulary lists (with English translations *here* and *there*), *da* is used without explanation. *Treffpunkt Deutsch*, the first-year book used at the time of the study at the University of Iowa, does not contain *da* in any of its vocabulary lists. The learning

of demonstrative adverbs occurs passively or through the mapping of L1 translations onto the L2 forms. Presenting *da* in a vocabulary list would be a challenge due to the lack of coherence in the three-way German demonstrative locative adverb system.

Initially, this study set out to determine whether or not learners were able to acquire the meaning of *da* due to its divergence from the L1 English binary system. Based on the theory, it was intended that anaphoric uses of *da* be seen as a neutral form by native speakers that conveyed no deictic information. If learners acquired the possible meanings of anaphoric *da*, one would have expected learners to select ‘impossible to tell’ in items with anaphors involving *da*. However, the native speaker data gathered in the course of this study call into question the very premise of a purely neutral, anaphoric *da* in German, thus raising the question of what even the ideal, perfect, and “native-like” learner would or could acquire. If the native speakers themselves do not indicate a strong preference for a given interpretation, then judging native-like or non-native-like performance is not a reasonable goal.

The data concerning non-anaphoric deixis from Pilot Task 1 suggest a learner gap in knowledge of the use of *hier*, *da*, and *dort* in German. That learner gap, however, does not seem to improve from the elementary to intermediate level. The results also show that a fairly consistent native speaker acceptance of *da* in purely deictic settings. Of the five situations in which 100% of the native speakers accepted *da*, in only two (situations 5 and 7) did either of the learner groups have an acceptance rate of greater than 50% (chance) and in only one (situation 7) were their rates greater than 70%. The native speakers further concurrently accepted both *da* and *dort* at rates greater than 85% in situation 5 and situation 7, while native speaker acceptance of *da* and *hier* reached that level in situation 3. These results can be seen as evidence for the flexible use of deictic *da* in German, and the contrast with the learner data indicate that L2 learners do not assess the acceptability of the demonstrative adverbs in the same way. Some of the learner acceptance of forms seems to stem from a strict L1 interpretation strategy; in

situations 1 and 2, learners showed greater than 90% acceptance of *hier*, while the native speakers acceptance rates were less than 40%. Both of these situations could be completed with *here* in English, suggesting that L1 transfer may explain the high learner acceptance of the rough German equivalent *hier*. Indeed, based on vocabulary lists alone, that is the conclusion that a learner might be expected to draw.

Turning to Pilot Task 2, it becomes important to look at the interpretation assignments for each of the demonstratives individually. The selection of the location indicated by *hier* was clear for all three groups, with the intermediate learners slightly out-performing the elementary group. The learners seem to acquire the possible deictic-anaphoric meanings of *hier* with some degree of success. The autodeictic properties of *hier* seem to carry through to its use in anaphoric reference and learners demonstrate the ability to capture that semantic-pragmatic information from the choice of demonstrative in the utterance.

While the native speakers performed uniformly and as expected, the learners' selection of locations indicated by *dort* diverges from the native speaker pattern. The elementary learners performed with about the same accuracy as they had with *hier* (selecting 'somewhere else' 64% of the time), but the intermediate learners chose 'somewhere else' less than each of the other two options. Indeed, the intermediate learners selected 'impossible to tell' 42% of the time. While the native speakers consistently assigned heterodeictic interpretations to anaphoric uses of *dort* and the elementary group did so two-thirds of the time, the intermediate learners failed to do so. As previously suggested, this result could possibly be explained by the intermediate learners' becoming aware of the possible neutral interpretation of *da* and then over-applying that phenomenon to *dort*; however, a comparison of the intermediate and elementary data in both tasks does not show any strong indication that the intermediate learners judge the grammaticality of *da* or its semantic implications in a manner clearly different from the elementary learners.

The lack of a strongly preferred answer with the selection of *da* in any group provides little information about the acquisition of *da*, but it does call previously proposed theories to explain anaphoric *da* into question. The native speaker-learner contrast in the selection of speaker location as that which is indicated by *da* provides some support for an understanding of anaphoric *da* as behaving non-autodeictically. The learners also selected speaker location the least frequently of any of the possible choices, though their dispreference was not as strong as that of the native speakers. The split of the rest of the responses between ‘somewhere else’ and ‘impossible to tell’ suggests that anaphoric uses of *da* can be assigned an interpretation that is either heterodeictic-anaphoric or purely anaphoric. It refutes the idea that when used in an anaphoric structure, *da* is neutral and necessarily non-deictic. At the same time that three native speakers (37.5%) never assigned an ambiguous, non-deictic interpretation to *da*, two others (25%) assigned a purely non-deictic interpretation to anaphoric *da* 100% of the time. This contrast in interpretations, with the native speakers falling on one side of the interpretive scale, raises questions about what might account for the use and semantic interpretation of *da*. It is possible, for example, that the interpretations might be regionally variable or age-related, though the sample is too small and relatively homogeneous here to attempt to make such claims. For some native speakers, though, *da* seemed to exhibit deictic properties identical to *dort*, even when used as an anaphor.

It is unclear from the results of Pilot Task 2 whether this interpretive pattern was the result of a preferred interpretation issues or whether it actually reflects the range of possible interpretations of *da*. Modifying Pilot Task 2 to include an additional choice allowing for the possibility that a speaker could accept either location as possible or is uncertain could yield a clearer result. This modification serves two functions: making the interpretive task clearer and adding an additional option to reduce the role of chance in selection patterns.

Expanded L2 learner study

In order to enable some degree of comparison to the pilot results, the basic structure of the questionnaire remained in place for the expanded study. The expanded study, however, differs from the pilot in several important ways, both in terms of the instrument design and target demographics. In terms of participant demographics, there were two important changes. First of all, the number of participants was greatly expanded, most critically in the native speaker control group. The pilot study's use of only eight native speakers severely limited the ability to compare learner performance with native speaker performance. Secondly, two additional participant groups were added: upper-level learners and highly-proficient non-native speakers (NNS). The use of additional non-native speaker groups allows for a more fine-tuned comparison between native and non-native speaker performance. In addition to these demographic changes, each task was modified. Task 1 was modified to include drawings for each item that depicted the scenario being analyzed in order to minimize the influence of differing interpretations of the prose descriptions of the scenarios. Task 2 was modified to include an additional choice for each item (either of these) and 'impossible to tell' was reworded as 'I'm uncertain'. The goal of these changes was to allow participants to express interpretational flexibility as well as uncertainty.

Participants

Responses were collected online using a WebSurveyor survey tool hosted on the University of Iowa's network. Invitations to participate were provided via e-mail; recipients were additionally invited to forward the invitation to others who might be interested in participating in the study. Both the invitation and the survey instruments instructions were provided in both English and German. A total of 215 participants completed the survey tasks: 107 native speakers and 108 non-native speakers. There were 149 female participants and 66 male participants; the majority of the participants were

between 18 and 34 years of age. Based on the participants answers to questions about their experiences learning German, non-native speakers were placed into groups. Those individuals with less than one year of college-level German instruction were considered “first-year learners” (N=28); those enrolled in second-year/intermediate level college-level German courses were considered “second year learners” (N=19). Participants enrolled in courses beyond the second year college level were classified as “upper-level learners” (N=36). Lastly, non-native-speaker participants who indicated that they began learning German at least ten years ago, where not currently enrolled in German courses, and had spent at least half a year in a German-speaking company were classified as “highly-proficient non-native speakers” (N=25). Non-native speakers of German who were not native speakers of English were not included in any of the participant groups. The questionnaire responses, rather than proficiency testing, were used to establish the groupings in order to enable the collection of a sufficiently large data sample to perform

Table 6 Demographic characteristics of study participants

	<i>Total</i>	<i>Gender</i>		<i>Age range</i>					
	(215)	Female	Male	18-24	25-34	35-44	45-54	55-64	≥ 65
First-Year Learners	28	21	7	19	6	1		2	
Second-Year Learners	19	12	7	17		1		1	
Upper-level Learners*	36	22	14	31	3		1		
Highly proficient NNS	25	15	10	5	11	4	3	1	1
Native Speakers	107	79	28	25	53	7	8	8	5

* One participant did not indicate her age.

meaningful analyses. The questionnaire can be found in Appendix F, and Table 6 presents an overview of the demographic characteristic of the study's participants broken out by participant grouping.

Task 1: Acceptability judgments

This task used the same items as Pilot Task 1, however in addition to a prose stem, the participants were presented with a drawing presenting a visual representation of the scenario. The inclusion of a drawing was meant to minimize the impact of any differences in the participants' interpretation of the relative location of the speaker and hearer in a given interaction; since the study is examining spatial references, it is important that potential differences in spatial reference be controlled for as much as possible. In each drawing, an empty speech bubble was used to indicate who was speaking. Through the use of the drawing and the speech bubble, one source of possible inter-participant variance was minimized; the focus of the analysis of the results can therefore be on the acceptability judgments and not on the range of possible interpretations of the structure of a written scenario. The other difference between Task 1 and Pilot Task 1 is that Task 1 presented the prose description in both English and German (and not just in English) due to the expanded scope of the participant base (the native speakers in the pilot were all highly proficient English speakers who lived in the United States, while the English level of the native speakers in the expanded study varied). The bilingual scenario description (visible to all participants regardless of language background) further ensured that the differences being analyzed were the result of differences in the interpretation of the various scenarios and not on a lack of understanding of what exactly that scenario was.

Analysis of aggregate Task 1 judgments

In order to determine the relationships between the acceptability judgments made by the five participant groups, a statistical analysis of the data from Task 1 was conducted using GraphPad Prism 5. Specifically, a two-way ANOVA was used to identify the sources of variation in the data. The ANOVA is useful for showing the general sources of variance found in the dataset; it does not reveal much about the specific interactions of those differences. More revealing than the ANOVA, however, are more detailed comparisons of each group with each of the other four groups. Such comparisons enable the identification and isolation of inter-group differences; a statistical analysis allows the determination of which differences are large enough to bear statistical significance. Such statistically significant (and insignificant) differences can guide the interpretation of the data. While comparing each non-native speaker group with the native speaker group is desirable, it is not the only relevant comparison. Differences between the four non-native speaker groups provide insight into the language acquisition as a process. Therefore, Bonferroni multiple comparisons *t*-tests were used to compare the acceptance rates for each of *hier*, *da*, and *dort* in each of the five participant groups; a total of 30 *t*-test comparisons were made for the overall judgments. (The judgments for each individual item also underwent statistical testing, the results of which will be discussed in the next section.)

The two-way ANOVA found that participant grouping, adverb, and the interaction between these variables each have an effect on the overall variance. The differing sample size in each group means that this test can only approximate the source of the variation; however, the ANOVA does not form the basis of the analysis of the results of this task, but instead points to the need to drill-down on the variables through the use of individual *t*-tests to compare the acceptance data for each adverb between each participant group. Those comparisons are both more statistically robust than an overall ANOVA and more relevant to an analysis of the interpretations of the meanings and

acceptability of *hier*, *da*, and *dort*. Specifically, individual *t*-tests allow for the comparison of each group's performance to the native speaker control group and to each other participant group to see when participants may be exhibiting native-like acceptance tendencies and when different levels of learners may be demonstrating similar or dissimilar performance.

Before looking at the *t*-test results, a look at the numerical variance in mean and median acceptance groups between the four non-native speaker groups and the native-speaker group provides some insight into how the groups vary in their acceptance of *hier*, *dort*, and *da*. Taking the absolute values of the variance obscures the difference between over-acceptance and under-acceptance, but it also reveals differences in acceptance that could be lost if over-acceptance in some cases balances out under-acceptance in other circumstances (potentially showing a variance of around zero despite actual variance in acceptance on individual items). Table 7 presents the mean and median of variance from native speakers when absolute values are taken of the variance for each item.

Numerically, the data presents a picture of variance that is inversely proportional to the language level of the participants, suggesting that more proficient NNS become more native-like as their language skills increase. The greatest variance from the native speaker control group was seen with *da*, while the least variance was seen with the acceptance rates for *hier*. The non 1:1 relationship between *da* and an English equivalent contrasted with the phonetic and orthographic similarity between English *here* and German *hier* are factors which would tend to support such a finding.

Examining the absolute values of the variance eliminates the possibility of obscuring differences which exist (as would be the case if the negative under-acceptance values were to balance out positive over-acceptance values), it also treats over-acceptance in the same manner as under-acceptance. Since these two types of variation from native speaker performance are not the same, examining the raw variance values can show some of those differences that are missed with the absolute values. Table 8 also presents mean

and median variance for each group when compared with native speaker acceptance, but this table uses the actual values such that positive variance would neutralize negative variance. The fact that in each group acceptance rates were higher than those of native speakers for some items and lower for other items means that the data in this table are of limited value for a comprehensive analysis of the differences between non-native and native speaker participant groups due to the interaction of positive and negative values. The absolute values discussed above therefore present a more useful measure of what might constitute native-like performance. Despite this shortcoming, the data in Table 8, as in Table 7, suggest that increased proficiency does lead to more native-like performance, with the variance in the highly-proficient NNS and upper-level learners group being closer to zero than that of the other learner groups. Again, though, zero variance in Table 8 does not necessarily mean minimal variance due to positive and negative values at both extremes serving as neutralizing factors in the calculation of descriptive statistics for the variance of item acceptance. However, where the absolute values of the figures in Table 8 are approximately the same as the figures in Table 7, then the direction of the variance (positive v. negative) shown in Table 8 shows the general direction of the variance between that group and the native speaker group. The variance for *dort* is scattered both above and below the native speaker acceptance rates, but the same is not true for *da* and *hier*. While the non-native speaker acceptance rates for *hier* vary primarily in a positive (over-acceptance) relationship with the native speaker acceptance rates, the acceptance rates for *da* show a negative relationship (under-acceptance) with the native speaker data. This observation would suggest that the non-native speakers are less likely to accept *da* and more likely to accept *hier* than their native speaker counterparts are.

The results from 12 *t*-tests comparing native-speaker acceptance with the acceptance rates in each of the other four participant groups are summarized in Table 9.

Table 7 Absolute values of NNS variance from NS acceptance of *hier*, *dort*, and *da* (Task 1)

<i>figures in percent</i>	<i>overall</i>		<i>hier</i>		<i>dort</i>		<i>da</i>	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
First-Year Learners	31	30	22	15	28	14	42	37
Second-Year Learners	21	10	15	4	12	14	35	36
Upper-level Learners	13	6	5	2	9	7	24	24
Highly-proficient NNS	7	4	6	4	3	3	13	17

Table 8 NNS variance from NS acceptance of *hier*, *dort*, and *da* (Task 1)

<i>figures in percent</i>	<i>overall</i>		<i>hier</i>		<i>dort</i>		<i>da</i>	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
First-Year Learners	-8	0	18	12	-3	0	-39	-37
Second-Year Learners	-7	0	15	4	-1	3	-35	-36
Upper-level Learners	-5	-2	4	0	5	6	-23	-24
Highly-proficient NNS	-2	0	1	0	3	3	-10	-17

Table 9 *t*-test comparisons native speakers vs. other groups (Task 1)

Native speakers vs.	First-year learners	Second-year learners	Upper-level learners	Highly proficient NNS
<i>da</i>	****	****	****	***
<i>dort</i>	n.s.	n.s.	n.s.	n.s.
<i>hier</i>	****	n.s.	n.s.	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant

These data compare the aggregate acceptance of each of *da*, *dort*, and *hier* across all seven Task 1 items. This aggregate data does not provide clear information about judgments across the five participant groups because aggregation has the tendency to skew results due to the amplification or hiding of differences that may occur across the task. Each of the seven items in the task depicted a different scenario and usage situation, so one would not expect acceptance rates to be evenly distributed across the seven items. To address those analysis issues, the next section will analyze performance on individual items. What these aggregate comparisons do show, however, is where the greatest differences may be: they point to areas worthy of further investigation and provide hints of what might be revealed in an item-by-item analysis. The aggregate acceptance rates of *dort* by each of the non-native speaker groups showed no significant difference when compared with that of the native speaker group. The first-year learners were the only group to show a significant difference from aggregate native speaker acceptance of *hier*. Each of the four non-native speaker participant groups showed a significant difference in their aggregate acceptance of *da* when compared with the acceptance rates of the native speaker group. Each of the learner groups differed significantly with a P value of less than 0.0001, while the highly-proficient non-native speaker group differed slightly less significantly, but still at a very robust level ($P < 0.001$). These differences point towards the learner gap in the knowledge of the use of *da* that was suggested by the data from the pilot study. In order to analyze these differences in the task as a whole and to see what gap might exist, it is necessary to consider each item individually. Before turning to an individual item analysis, an examination of the presence of significant differences between the non-native speaker groups is also useful in assessing overall variance. Table 10, Table 11, Table 12, and Table 13 summarize the results of *t*-tests carried out to compare the differences in the overall acceptance or rejection of *da*, *dort*, and *hier* in each of the participant groups. Of particular note is that the first-year learners showed a significant difference in their acceptability judgments of *da* and *hier* when compared with

the highly-proficient non-native speaker and native speaker groups. No group pair showed a significant difference in the acceptance of *dort*. It would appear that learners may be able to develop native-like acceptance tendencies for *dort* relatively quickly but that native-like acceptance of *da* is not gained so quickly. The differing nature of each of the seven items, however, makes it impossible to use these statistical results to make any generalizations. The comparisons of the overall acceptance rates, as previously discussed, should be viewed with suspicion until compared with an analysis of each individual item.

Analysis of individual and semantically-grouped Task 1 item judgments

In the previous section, the aggregate data from Task 1 were compared across the participant groups. Some differences were observed, but in many regards the data appear rather homogeneous at the aggregate level, with relatively few grouping pairs demonstrating statistically significant differences. This section will look more closely at the data for each individual item since an analysis of the overall acceptance of the spatial adverbs across items discounts the expected influence of each scenario on the acceptance or rejection of a given choice. To account for the structure of the task, it is thus necessary to consider differences between the participant groups for semantic groupings of items and individual discrete items. To that end, a series of 30 *t*-tests were conducted using GraphPad Prism 5 for each of the seven items in Task 1 (a total of 210 *t*-tests).

Before turning to the statistical analysis, considering the raw data for each item can help guide the more detailed analysis. All of the Task 1 items, including their associated drawings and a summary of the acceptance rates for each participant group, can be found in Appendix D. The key data from the items are summarized in Table 14, which shows a breakdown of the acceptance rates for each spatial adverb for each item by each of the five participant groups. First-year learners accepted *da* between 19 and 89

Table 10 *t*-test comparisons of first-year learners vs. other groups (Task 1)

First-year learners vs.	Second-year learners	Upper-level learners	Highly proficient NNS	Native speakers
da	n.s.	n.s.	**	****
dort	n.s.	n.s.	n.s.	n.s.
hier	n.s.	n.s.	**	****

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 11 *t*-test comparisons of second-year learners vs. other groups (Task 1)

Second-year learners vs.	First-year learners	Upper-level learners	Highly proficient NNS	Native speakers
da	n.s.	n.s.	n.s.	****
dort	n.s.	n.s.	n.s.	n.s.
hier	n.s.	n.s.	n.s.	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 12 *t*-test comparisons of upper-level learners vs. other groups (Task 1)

Upper-level learners vs.	First-year learners	Second-year learners	Highly proficient NNS	Native speakers
da	n.s.	n.s.	n.s.	****
dort	n.s.	n.s.	n.s.	n.s.
hier	n.s.	n.s.	n.s.	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 13 *t*-test comparisons of highly proficient NNS vs. other groups (Task 1)

Highly-proficient NNS vs.	First-year learners	Second-year learners	Upper-level learners	Native speakers
da	****	n.s.	n.s.	***
dort	n.s.	n.s.	n.s.	n.s.
hier	****	n.s.	n.s.	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 14 Task 1 summary of acceptance of *da*, *dort*, and *hier* by item

	Item	10	11	12	13	14	15	16
Acceptance in %								
<i>First-year learners</i>								
da		29	19	29	81	52	32	75
dort		25	25	43	52	48	27	67
hier		96	96	93	41	62	85	12
<i>Second-year learners</i>								
da		47	32	42	68	84	11	90
dort		16	6	17	89	95	11	90
hier		95	94	90	11	26	100	5
<i>Upper-level learners</i>								
da		69	46	57	71	55	14	77
dort		9	9	26	83	89	14	91
hier		63	88	89	12	34	97	9
<i>Highly-proficient NNS</i>								
da		80	76	72	72	67	24	72
dort		4	4	4	88	92	8	96
hier		52	92	84	12	17	100	4
<i>Native speakers</i>								
da		97	95	95	69	88	48	95
dort		2	1	1	88	89	20	97
hier		39	84	88	12	28	100	9

percent of the time depending on the item; for second-year learners that range was similar but even broader at 11-90 percent, but even the native speaker group had considerable variation across the items (48-97 percent). These wide ranges are not unexpected, but they do underscore the inherent problem with looking solely at aggregate acceptance data. In the native speaker group, the four items with the highest acceptance of *da* are items 10-12 and item 16.

Items 10-12 describe situations where the speaker and hearer are at the same location and the speaker uses the spatial adverb to refer to a location on the same general premises, but not the specific location where the speaker and hearer are currently situated. These scenarios involve reference to what might be called a local general non-speaker location, for instance, while at work, asking if one's boss is elsewhere in the office. These were the Task 1 items with which there was the most variance among L2 acceptance rates and where native speaker acceptance of *da* was the strongest. Nearly all of the native speakers (97%, 95%, and 95% respectively) accepted *da* in items 10, 11, and 12. These three items are repeated below, in examples (45)-(47):

- (45) Item 10. A magazine salesman knocks on the front door of a home. A child answers the door. The salesman asks, *Ist der Papa X?* ('Is your dad X?')
- (46) Item 11. A father arrives at home. He sees his daughter in the kitchen, greets her, and asks, *Ist die Mama X?* ('Is Mom X?')
- (47) Item 12. Two colleagues are chatting in the copy room at work. One of them wants to know if their boss, Martina, is in the office. He asks, *Ist Martina X?* (Is Martina X?)

For each of these three items, the acceptance rates for *da* climbs as language proficiency increases, with each non-native speaker group showing improvement over the next most-proficient group (set: 26-96%; Item 10: 29-97%; Item 11: 19-95%; Item 12: 29-95%). Similarly, for these three items, the acceptance rate for *dort* declines progressively in a similar fashion (set: 31-1%; Item 10: 25-2%; Item 11: 25-1%; Item 12: 43-1%), with the

exception of the upper-level learners accepting *dort* somewhat more often than the second-year learners in items 11 and 12. It is important to remember here that this task was structured such that participants' acceptance of one spatial adverb would not necessitate the rejection of another. Thus, the decline in the acceptance of *dort* that accompanies the increase in the acceptance of *da* is notable; this relationship suggests that as proficiency increases, non-native speakers begin to see *da* as a replacement for *dort* in at least some circumstances. Within the group, there is some difference in the location situation that may explain some of the intra-group variance. While the native speaker acceptance rate for *hier* in items 10-12 is less consistent than that for *dort*, the rejection of *hier* by 61% of the native speakers in item 10 presents a clear contrast to the almost universal acceptance of *hier* by the first-year learners (4% rejection) and second-year learners (5% rejection). In item 10, unlike items 11 and 12, the speaker is not in the same physical location that the spatial adverb is being used to reference; the salesman is outside of the house, while the hearer and the desired target location of the spatial adverb are inside the house. The first-year and second-year learners seem to interpret *hier* as being less restrictive than many native speakers (as well as upper-level learners and highly-proficient non-native speakers) consider it to be. The first- and second-year learners further do not seem to accept *da* as being acceptable in cases where the English word *here* would be used. They may recognize that *da* can sometimes be used to indicate an English *there* meaning and then over-apply that knowledge to limit the acceptability of *da* in cases where it may be appropriate German usage.

Item 16 presents a scenario involving reference to a non-speaker location. It differs from the general non-speaker location in Items 10-12 in that the location referenced here is a specific and distant location rather than a general localized place. In this item, the speaker refers to a specific house while at work, and *hier* is accepted with low frequency by all participant groups, including the native speaker group. The acceptance of *da* is high and relatively stable across L2 groups (75-90%), while the acceptance of *dort*

reaches near-native levels at the second-year learner proficiency group and above. This is the fourth item—in addition to Items 10-12— "that exhibited high acceptance rates of *da* (95%), like the native speaker group. Item 16 is shown below in (48):

- (48) Item 16. Marianne and Johannes liked the house they saw and want to live there. The next day at work, Marianne tells a colleague about it, saying, *Wir wollen X wohnen*. (We want to live *X*.)

With this item, however, there is neither a strong rejection of *dort* by the native speakers, nor did first- and second-year learners reject *da* at very high rates. Indeed, *da* was accepted by 75% of the first-year learners and 90% of the second-year learners. Unlike items 10-12, in this item it is clear from the context that the location being referred to by the spatial adverb is not the same location as the one where the utterance is taking place. This learner acceptance is consistent with the theory that learners may map *da* to English *there*. It does not, however, seem that learners simply equate *da* with *dort* as acceptance rates for these two choices vary, most notably in items 12 and 13.

Item 14 also involves reference to a non-speaker location, but here that non-speaker location is abstract and at an uncertain distance from the speaker. The item is repeated below:

- (49) Item 14. Marianne and Johannes are looking for a new home. Having an office in her home is important to Marianne, and she tells her real estate agent that she needs such a room so that she can write, saying, *X will ich schreiben*. (*X* I want to write.)

The results for the abstract non-speaker location described in Item 14 differ from the local general non-speaker location of Items 10-12. Specifically, with the exception of the first-year learners, *dort* has near universal acceptance (89-95%) in all other groups, and the acceptance of *hier* is lower across all groups. The more distant nature of the abstract reference in Item 14 appears to limit the acceptance of *da* and promote the acceptance of *dort*.

The scenario in Item 13 involves sloppy identity; two physically separate, but similar locations are linked via a spatial adverb:

- (50) Item 13. Paul likes to watch TV in bed. His brother Peter prefers to read in bed. Agnes, Pauls wife, is describing these habits to a friend and says, Peter liest im Bett und Paul sieht *X* fern. (Paul reads in bed and Paul watches television *X*.)

All groups except for the first-year learner group showed similarly low levels of acceptance of *hier* (11-12%); these same also showed a high acceptance of *dort* (83-89%), while the first-year learners accepted *dort* only 52% of the time. The acceptance of *da* was high across all participant groups (68-81%). Except for the lowest proficiency group, all L2 groups showed native-like performance in their acceptability judgments.

Item 15 describes a scenario involving reference to the speaker's location while the hearer is located elsewhere:

- (51) Item 15. A real estate agent is showing a home to Marianne and Johannes. Johannes is standing in the home's kitchen, admiring it, and calls out to his wife, Ich könnte *X* toll kochen. (I could cook well *X*.)'

With a clear speaker location reference, *hier* showed nearly universal acceptance rates across all groups, though 15% of the first-year learners rejected *hier*. Conversely, *dort* showed low acceptance rates across all groups (8-27%). While *da* was accepted at a higher rate by the native speakers than by any other group, its acceptance even in that group was less than 50%, and it differs significantly from only the second-year and upper-level learner groups. The strong preference across all groups appears to be *hier* for this clear speaker-location.

In order to consider the raw data more completely, the statistical differences between group acceptance rates were determined through the previously discussed series of *t*-tests. For each item, each group's acceptance rates for each adverb were compared

Table 15 Inter-group variance by Task 1 item

	Item	10	11	12	13	14	15	16
Significant variance pairs with ...								
da (10 maximum)		5	7	5	0	2	2	3
dort (10 maximum)		0	1	3	3	4	0	3
hier (10 maximum)		6	0	0	1	2	0	0
Overall (30 maximum)		11	8	8	4	8	2	6

Table 16 Number of Task 1 items with significant differences from NS acceptance

	<i>da</i>	<i>dort</i>	<i>hier</i>
First-year learners	5	5	3
Second-year learners	4	0	1
Upper-level learners	6	1	1
Highly-proficient NNS	1	0	0

with each other group's acceptance rates for each adverb. In this manner, trends, similarities, and differences can be identified. The most inter-group variance is seen with the acceptance of *da*, but as Table 15 shows, there was inter-group variance with each of the three spatial adverbs. The highest number of group pairs that show significant differences are found in items 10-12; as previously discussed, the disparity in native-speaker and learner acceptance of *da* with these items represents the largest variance between the native speaker and non-native speaker groups in this task.

The first-year learner group had the highest number of items with significant differences from the native speaker group for each of *da*, *dort*, and *hier*. The judgments of first-year learners differed significantly from those of native speakers for more than half of the items with all three adverbs: Table 16 summarizes the number of items where significant differences in acceptance rates were found between each non-native speaker group and the native-speaker group. All three learner groups had acceptability judgments for *da* that differed significantly from the native speaker group for more than half (5/7, 4/6, and 6/7) of the items; the highly-proficient non-native speaker group showed a significant difference for only one of the judgments concerning *da* (item 16). The highly-proficient non-native speaker group basically performed at native speaker levels, showing a significant difference in only that one item and with no other items or adverbs. Additionally, this result was significant only at the 0.05 level and represented an under-acceptance of *da* at a 72 percent rate as opposed to a 95 percent rate for the native speakers. While statistically significant, it does not indicate a major difference in interpretation as nearly three-quarters of the members of that group accepted *da*. This is not the case with the learner groups' acceptance rates for *da*, which as noted during the discussion of the raw data can differ quite widely from the acceptance rates shown in the native speaker group. While the first-year learners differed significantly in their acceptance rates for *dort* in five of the seven items and *hier* in three of the seven items, the second-year and upper-level learners showed significant differences from the native

speakers in accepting *dort* and *hier* in at most one of seven items. This result suggests that L2 learners are able to acquire knowledge of the use of *dort* and *hier* rather early during acquisition, but that the acquisition of the use of *da* remains a challenge even for the upper-level learners.

Table 17-Table 21 present more detailed summaries of the *t*-test results organized by each participant group. Levels of statistical significance are indicated by asterisks, with a single asterisk indicating a P value of less than 0.05 and four asterisks designating a P value of less than 0.0001. First-year learners and second-year learners showed no significant difference in their acceptance of *da*, but first-year learners did show a significant difference with upper-level learners and highly-proficient non-native speakers in terms of *da* acceptance in three of the seven items. While the upper-level learners themselves exhibited significant differences in their acceptance of *da* when compared with native speakers, these inter-group comparisons confirm the analysis made on the basis of the raw data: the increasing acceptance of *da* in items 10-12 as proficiency increases.

The items demonstrating the least variance from native speaker performance are items 15 and 16, repeated below:

- (52) Item 15. A real estate agent is showing a home to Marianne and Johannes. Johannes is standing in the home's kitchen, admiring it, and calls out to his wife, Ich könnte *X* toll kochen. (I could cook well *X*.)
- (53) Item 16. Marianne and Johannes liked the house they saw and want to live there. The next day at work, Marianne tells a colleague about it, saying, Wir wollen *X* wohnen. (We want to live *X*.)

Each of these items has a clear indication in the context (and drawing) that the conversation is taking place somewhere other than where the location is being referenced with a spatial adverb. While acceptance differs significantly at times from the native speaker group, at least 70% of each groups' participants accept *da* in item 16, while in item 15 more than half (52%) of the native speaker participants reject *da*. The

Table 17 Native speakers: *t*-test comparisons of acceptability judgments for individual items with those of other participant groups (Task 1)

	Item	10	11	12	13	14	15	16
Native speakers vs.								
<i>First-year learners</i>								
da		****	****	****	n.s.	**	n.s.	*
dort		n.s.	*	****	***	***	n.s.	n.s.
hier		****	n.s.	n.s.	*	**	n.s.	****
<i>Second-year learners</i>								
da		****	****	****	n.s.	n.s.	***	n.s.
dort		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier		****	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Upper-level learners</i>								
da		**	****	****	n.s.	***	****	*
dort		n.s.	n.s.	**	n.s.	n.s.	n.s.	n.s.
hier		*	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Highly-proficient NNS</i>								
da		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	*
dort		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 18 First-year learners: *t*-test comparisons of acceptability judgments for individual items with those of other participant groups (Task 1)

Item	10	11	12	13	14	15	16
<i>First-year learners vs. Second-year learners</i>							
da	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	n.s.	*	**	n.s.	n.s.
hier	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Upper-level learners</i>							
da	***	*	*	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	n.s.	n.s.	**	n.s.	*
hier	**	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Highly-proficient NNS</i>							
da	****	****	***	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	***	*	**	n.s.	*
hier	***	n.s.	n.s.	n.s.	**	n.s.	n.s.
<i>Native Speakers</i>							
da	****	****	****	n.s.	**	n.s.	*
dort	n.s.	*	****	***	***	n.s.	n.s.
hier	****	n.s.	n.s.	*	**	n.s.	****

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 19 Second-year learners: *t*-test comparisons of acceptability judgments for individual items with those of other participant groups (Task 1)

Item	10	11	12	13	14	15	16
Second-year learners vs.							
<i>First-year learners</i>							
da	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	n.s.	*	**	n.s.	n.s.
hier	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Upper-level learners</i>							
da	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Highly-proficient NNS</i>							
da	n.s.	***	n.s.	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier	**	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Native Speakers</i>							
da	****	****	****	n.s.	n.s.	***	n.s.
dort	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier	****	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*, P<0.01-**, P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 20 Upper-level learners: *t*-test comparisons of acceptability judgments for individual items with those of other participant groups (Task 1)

Item	10	11	12	13	14	15	16
Upper-level learners vs.							
<i>First-year learners</i>							
da	***	*	*	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	n.s.	n.s.	**	n.s.	*
hier	**	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Second-year learners</i>							
da	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Highly-proficient NNS</i>							
da	n.s.	**	n.s.	n.s.	n.s.	n.s.	n.s.
dort	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Native Speakers</i>							
da	**	****	****	n.s.	***	****	*
dort	n.s.	n.s.	**	n.s.	n.s.	n.s.	n.s.
hier	*	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 21 Highly-proficient NNS: *t*-test comparisons of acceptability judgments for individual items with those of other participant groups (Task 1)

	Item	10	11	12	13	14	15	16
Highly-proficient NNS vs.								
<i>First-year learners</i>								
da		****	****	***	n.s.	n.s.	n.s.	n.s.
dort		n.s.	n.s.	***	*	**	n.s.	*
hier		***	n.s.	n.s.	n.s.	**	n.s.	n.s.
<i>Second-year learners</i>								
da		n.s.	***	n.s.	n.s.	n.s.	n.s.	n.s.
dort		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier		**	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Upper-level learners</i>								
da		n.s.	**	n.s.	n.s.	n.s.	n.s.	n.s.
dort		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Native Speakers</i>								
da		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	*
dort		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
hier		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

differences are present, but not as notable as the differences seen in items 10-12, where there is a clear dichotomy between native and learner performance.

Task 2: Location interpretations

This task was based off of Pilot Task 2, but a fourth choice was added. Participants selected between a specific named location, a generic ‘somewhere else’, ‘either of these’, or ‘I’m uncertain’. These choices allow for the possibility of a flexible interpretation, a rigid interpretation, or the expression of ambiguity. Selecting the speaker location or non-speaker location—in lieu of expressing flexibility or uncertainty—should therefore indicate a degree of certainty in the mind of the participant as to the actual location of the speaker. There were a total of 12 items: four for each of *hier*, *da*, and *dort*. Unlike with Task 1, there were no drawings of the scenarios; in Task 1 participants were asked about possible uses of the spatial adverbs given a specific location. In task 2, participants are asked to identify a location based on the adverb being used. While English translations were provided for the brief scenario and the follow-up question, the item passage itself (the component containing the target adverb) was presented only in German, as collecting information on the interpretation of German was the goal of this task.

Data analysis

While in Task 1, the individual item analysis was more revealing than the aggregate analysis, in Task 2, the aggregate analysis is more useful than the item-by-item analysis. This task attempts to identify the tendencies in the semantic interpretation of the three spatial adverbs under consideration, not to address the flexibility or inflexibility in their use. Appendix E provides detailed results of the interpretations of each item, but the focus in the discussion of the data will be on the aggregate results

Graphs showing an overview of the location interpretation assignments given to each adverb provide a visual summary of the key points of the aggregate data. Figure 7

presents that data organized by location category (speaker location, non-speaker location, either location, or uncertain location), while Figure 8 is organized by adverb. For each of the five participant groups, the most frequent location interpretation for *hier* was the speaker's location; for *da* and *dort* the most frequent location interpretation was a non-speaker location. Despite this similarity in the overall selection, the rate at which these locations were selected was not identical across the participant groups. Similarly, although for both *da* and *dort*, a non-speaker location was most frequently selected, the rates for selection of this choice varied between *da* and *dort*.

Not surprisingly, the group that most often indicated that they were uncertain about the location of the speaker was the first-year learner group. This tendency is true across all three adverbs. While some of these selections may have been a result of a failure to comprehend the German language of the item, the items utilized elementary-level vocabulary to mitigate the effects of comprehension failures. The other source of the indication of uncertainty could be just that—uncertainty in the meaning imparted by the use of *hier*, *da*, and *dort*. The level of uncertainty among the first year learners was quite low, never exceeding 10% and the degree of uncertainty was similar for all three adverbs. The groups indicating both the least uncertainty in location selection and the most homogeneity as a group in terms of location selection were the highly-proficient non-native speaker and native speaker groups. The selection rates for these two groups exhibit patterns similar to each other, suggesting native-like interpretations on the part of the highly-proficient non-native speaker group.

Having provided an overview of the aggregate results for Task 2, the location selections for each adverb will be considered separately. As with Task 1, *t*-tests were carried out to compare the selection rates for the location possibilities among the five participant groups. The results of these *t*-tests are presented in Table 22-Table 26; each table presents the comparison of one of the participant groups with each of the other four participant groups. The aggregate acceptance rates are shown for each of the three

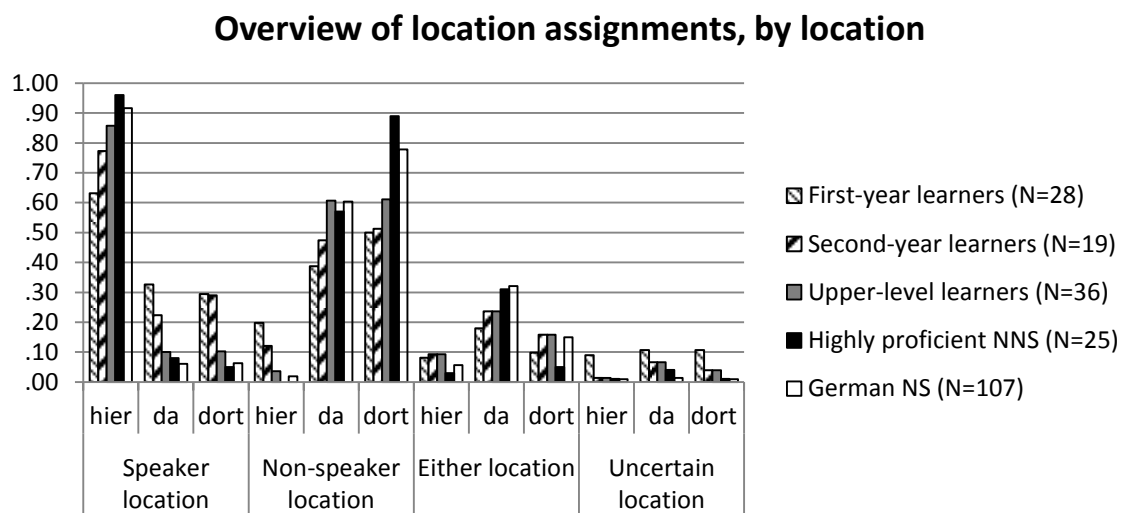


Figure 7 Overview of location assignments, by assigned location interpretation (Task 2)

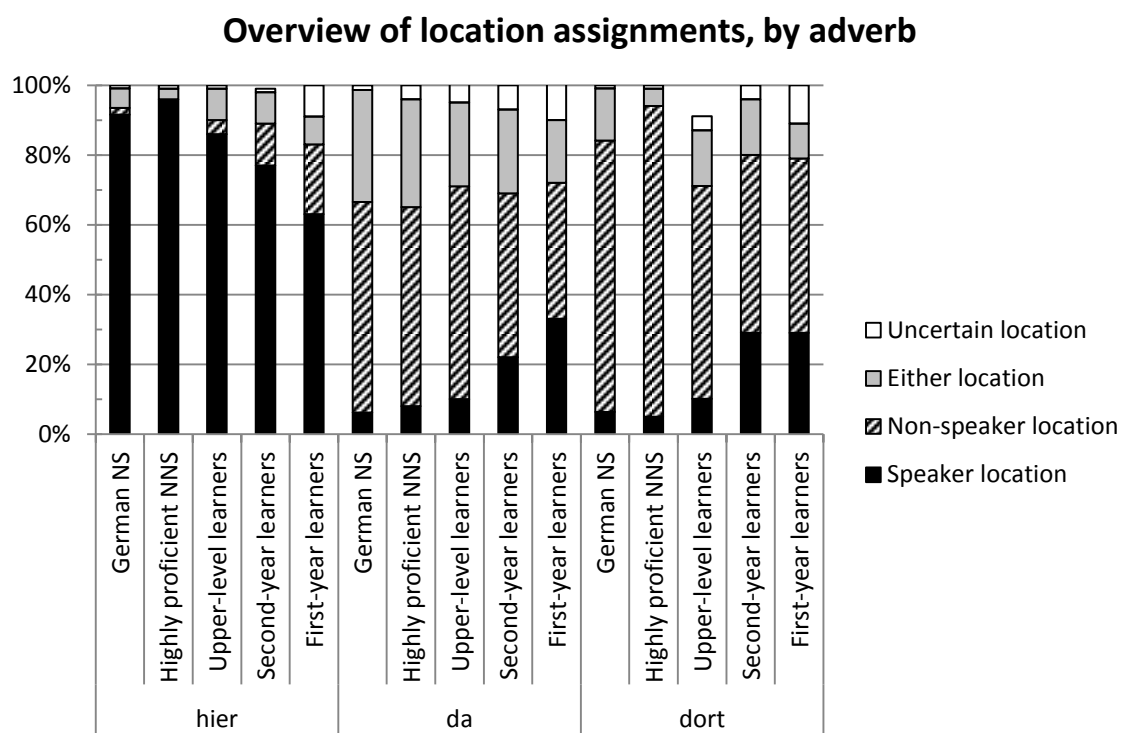


Figure 8 Overview of location assignments, by adverb (Task 2)

adverbs separately in Figure 9-Figure 11, while the data are grouped by participant group in Figure 12-Figure 19.

As previously reported, the selection of the speaker's location as being the location indicated by *hier* was the most frequent selection for all groups. Though this was also the most frequent selection made by the first-year learners, their choice of the speaker's location 63% of the time in items involving *hier* differed significantly ($P < 0.0001$) from the native speaker's 92% speaker location selection rate as well as the upper-level learners' 86% selection rate ($P < 0.01$) and the highly-proficient non-native speakers' 96% selection rate ($P < 0.0001$). The only inter-group statistically significant differences with the location assignments of *hier* were with the first-year learner group. Interestingly, the first-year learners interpreted the location indicated by *hier* as somewhere other than the speaker's location 20% of the time, more than twice the rate at which they indicated that either location was possible or that they were uncertain of the speaker's location. Given the similarity of the German *hier* with the English *here*, the comparatively high selection rate for a non-speaker location with the adverb *hier* is unexpected. A 20% selection rate, though it is still below chance for a four-item forced choice instrument, does represent a statistically significant difference from the highly-proficient non-native speakers 0% selection and the native speaker's 2% selection ($P < 0.05$) due to these groups' near unanimous rejection of this interpretation for *hier*. Though the second-year and upper-level learner groups selected a non-speaker location interpretation for *hier* more frequently than did the two non-learner groups, neither group showed statistically significant differences in these selection rates. The interpretation of the location indicated by *hier* seems to be a semantic judgment that can be acquired by learners with relative ease.

The selection of the location indicated by *dort* shows similarities with that of the selection tendencies for *hier* if one reverses the speaker location and non-speaker location labels. That is to say, while the participants largely chose the speaker's location as the

location indicated by *hier*, they predominantly chose a non-speaker location as the location indicated by *dort*. Expressing uncertainty in location assignment was similarly infrequent. The results are not, however, identical. Each of the five participant groups gave *dort* a flexible, either location interpretation more frequently (in most cases almost twice as frequently) than was provided to *hier*. Further, the first- and second-year learner groups showed nearly identical selection rates for both the speaker location and non-speaker location interpretations. More of the differences in selection rates were found to be statistically significant with *dort* than with *hier*. Both the first- and second-year learners showed significant differences in their interpretation of *dort* as indicating speaker-location (29% for both groups) or non-speaker location (51% for the second-year learners and 50% for the first-year learners) when compared with these interpretations of the native speaker groups (6% speaker location and 78% non-speaker location). The first- and second-year selection of *dort* indicating speaker location also differed significantly from that of the highly-proficient non-native speakers. Although not statistically significant when compared with the native speaker group, the upper-level learners provided *dort* with a flexible, either location interpretation 27% of the time, more frequently than they gave either *hier* or *da* this flexible interpretation. This result indicates that there may be some degree of lack of clarity in location interpretations when presented with the use of *dort*; the upper-level learners may recognize that there is some flexibility and ambiguity in the system of spatial demonstrative adverbs in German and then overapply that flexibility to their own interpretations even when not necessarily appropriate.

As expected, the selection tendencies for *da* show less of a strong preference for one location assignment than do those of the other two adverbs. Nonetheless, the majority of the interpretations in all participant groups with the exception of the first-year and second-year learners are of a non-speaker location; that choice is the first- and second-year learners most frequent selection, but at 39% and 47% respectively fall short

of a majority choice. Though there is some variance (39-61%) in the selection rate for a non-speaker location, the results are clustered around the 50% mark and as such inter-group variance is not statistically significant (with the exception of the 39% selection rate by the first-year learners compared with the 61% selection rate by the upper-level learners). The results that are striking and statistically significant are the contrasts between the selection rates of *da* indicating the speaker's location: the first-year learners' 33% selection of speaker location differ significantly from the upper-level learners 10%, the highly-proficient non-native speakers' 8%, and the native speakers' 6% selection of that interpretation for the location indicated by *da*. The upper-level learners, highly-proficient non-native speakers, and native speakers showed very consistent selection distributions for the location indicated by *da*: *da* rarely necessitates an interpretation that the speaker's location is referred to by *da*, it may sometimes be ambiguous and could mean either the speaker's location or some other location, and it most often indicates that the speaker's location is different from the location indicated by *da*. The first- and second-year learners, on the other hand, interpreted the location indicated by *da* as sometimes definitively being identical to the speaker's location, sometimes being an ambiguous location, and somewhat more often indicating a location other than the speaker's present location. Aspects of the system of spatial adverbs in German appear to be able to be acquired by L2 learners of German, though some of the interpretive aspects may take some time to acquire.

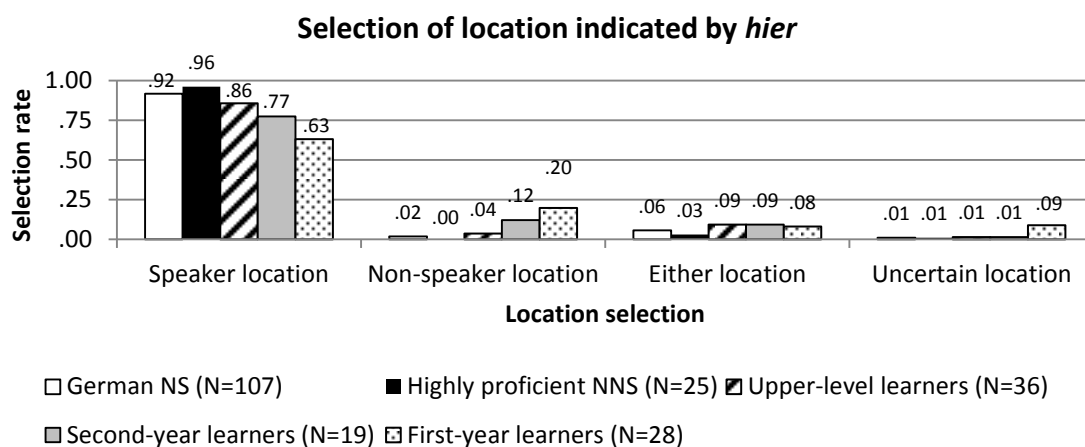


Figure 9 Participant selection of location indicated by *hier* (Task 2)

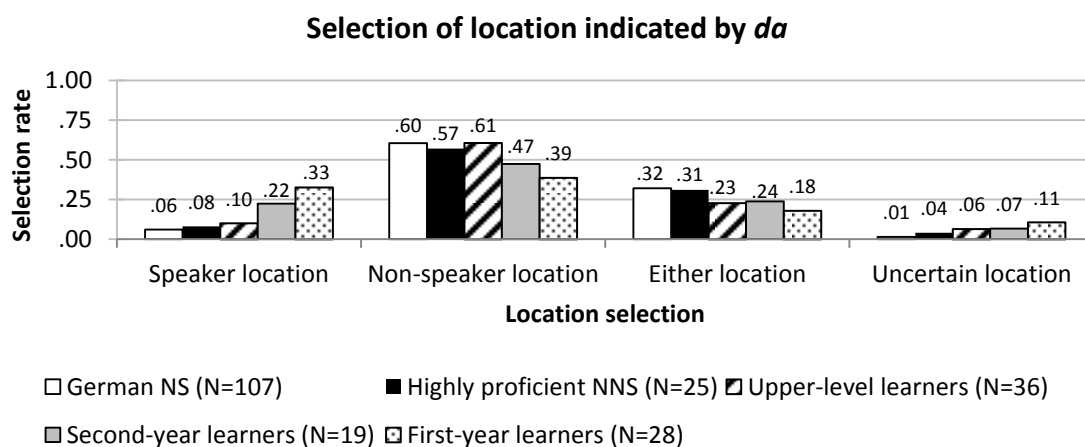


Figure 10 Participant selection of location indicated by *da* (Task 2)

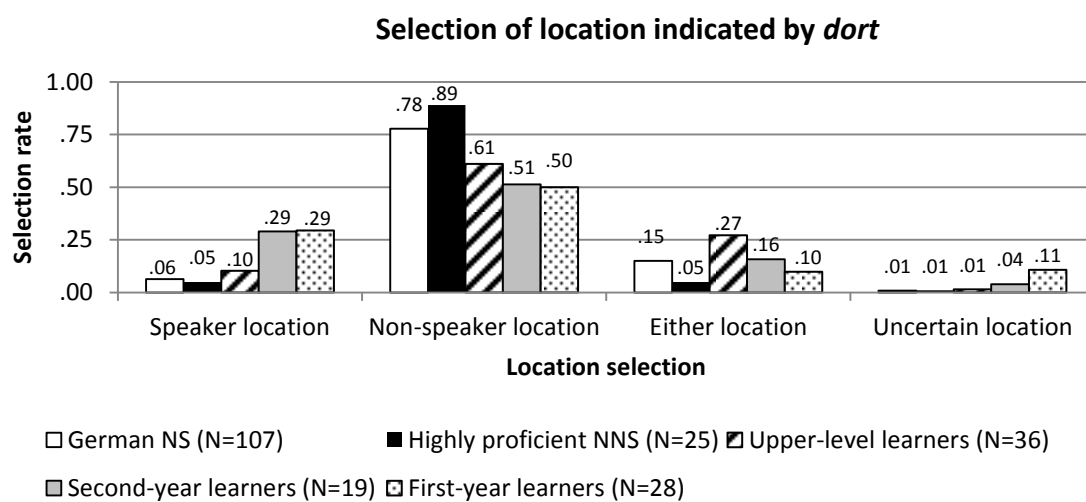


Figure 11 Participant selection of location indicated by *dort* (Task 2)

First-year learner selection of speaker location (by adverb)

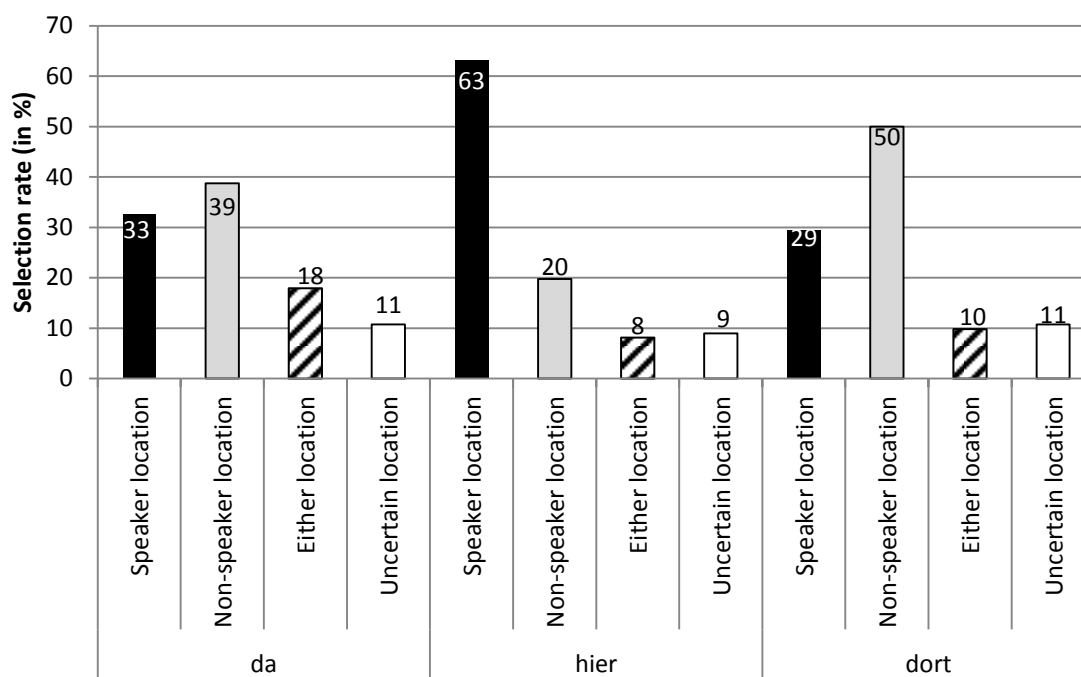


Figure 12 First-year learner selection of speaker location (Task 2)

First-year learner selection of speaker location based on demonstrative adverb use

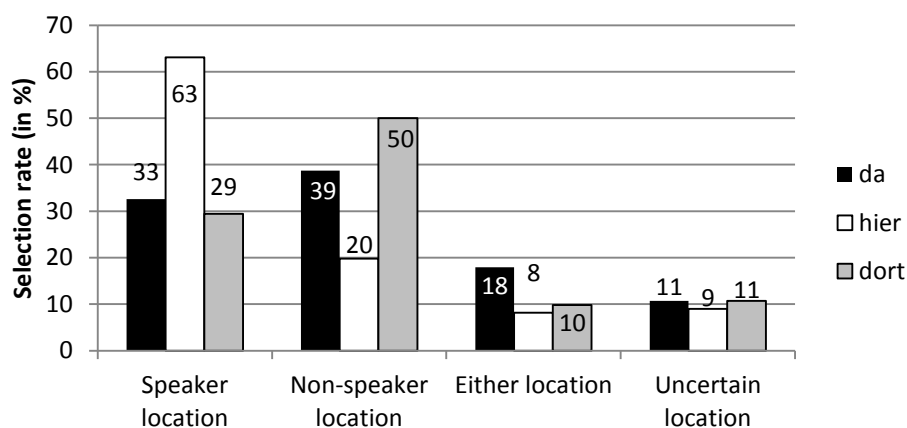


Figure 13 First-year learner interpretation of speaker location (Task 2)

Second-year learner selection of speaker location (by adverb)

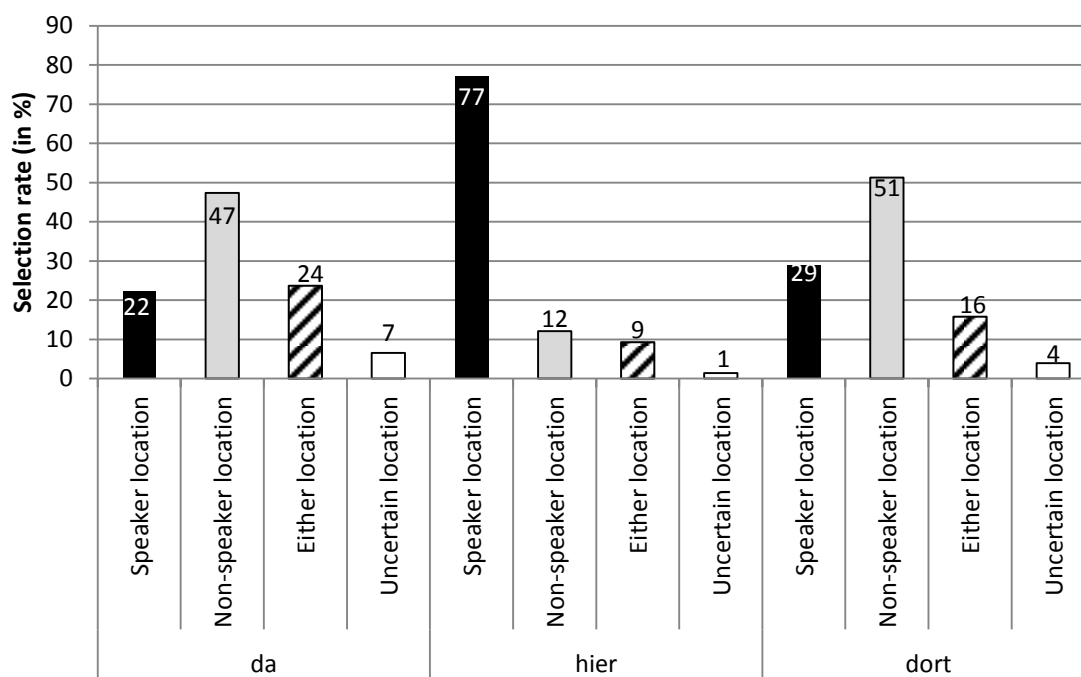


Figure 14 Second-year learner selection of speaker location (Task 2)

Second-year learner selection of speaker location based on demonstrative adverb use

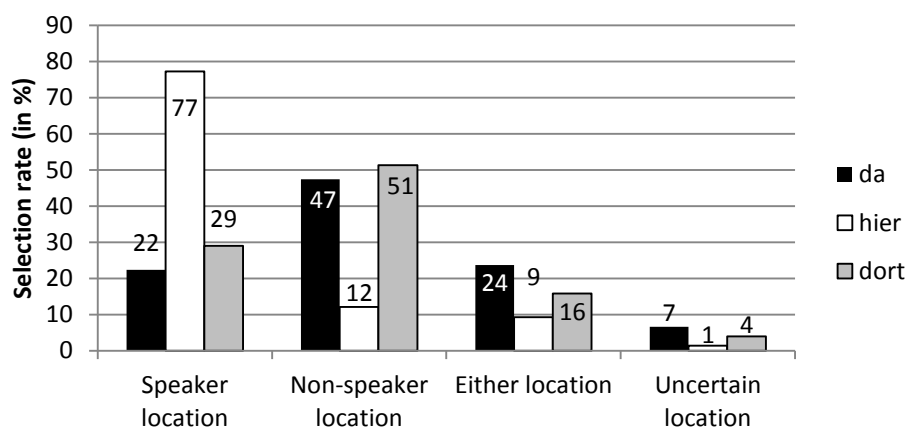


Figure 15 Second-year learner interpretation of speaker location (Task 2)

Upper-level learner selection of speaker location (by adverb)

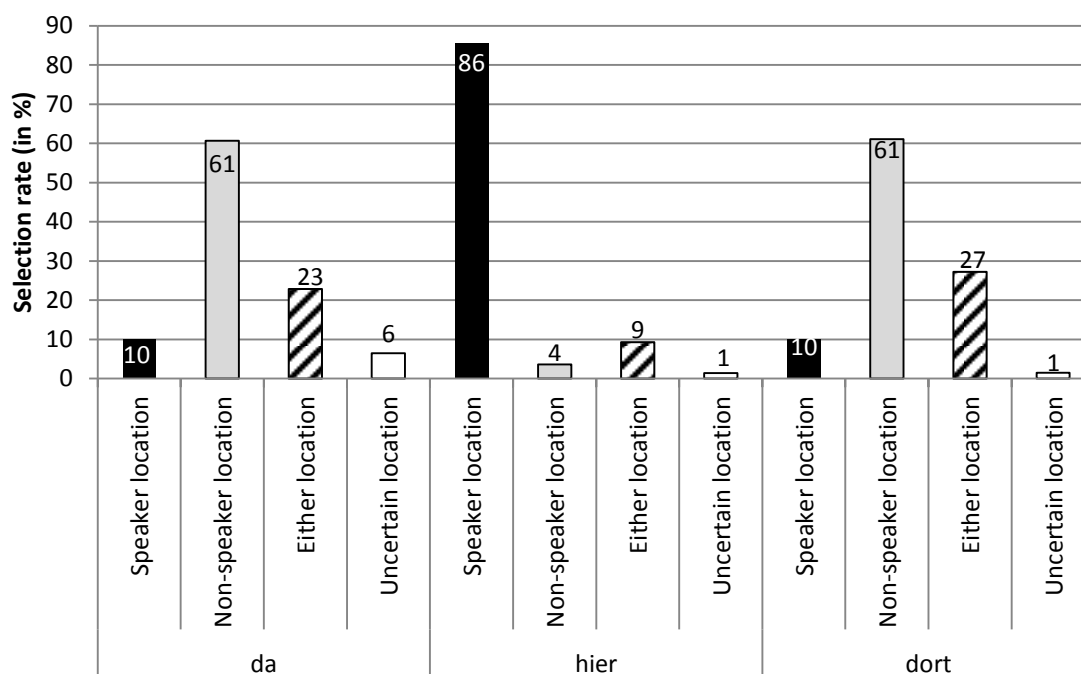


Figure 16 Upper-level learner selection of speaker location (Task 2)

Upper-level learner selection of speaker location based on demonstrative adverb use

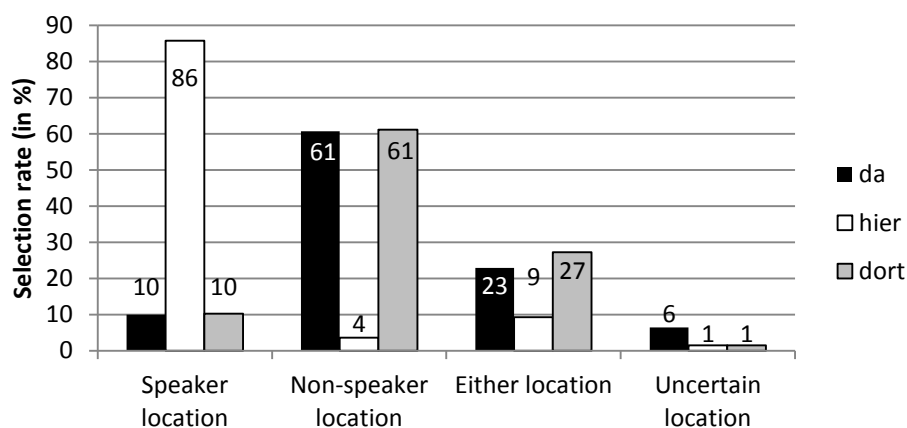


Figure 17 Upper-level learner interpretation of speaker location (Task 2)

Highly-proficient NNS selection of speaker location (by adverb)

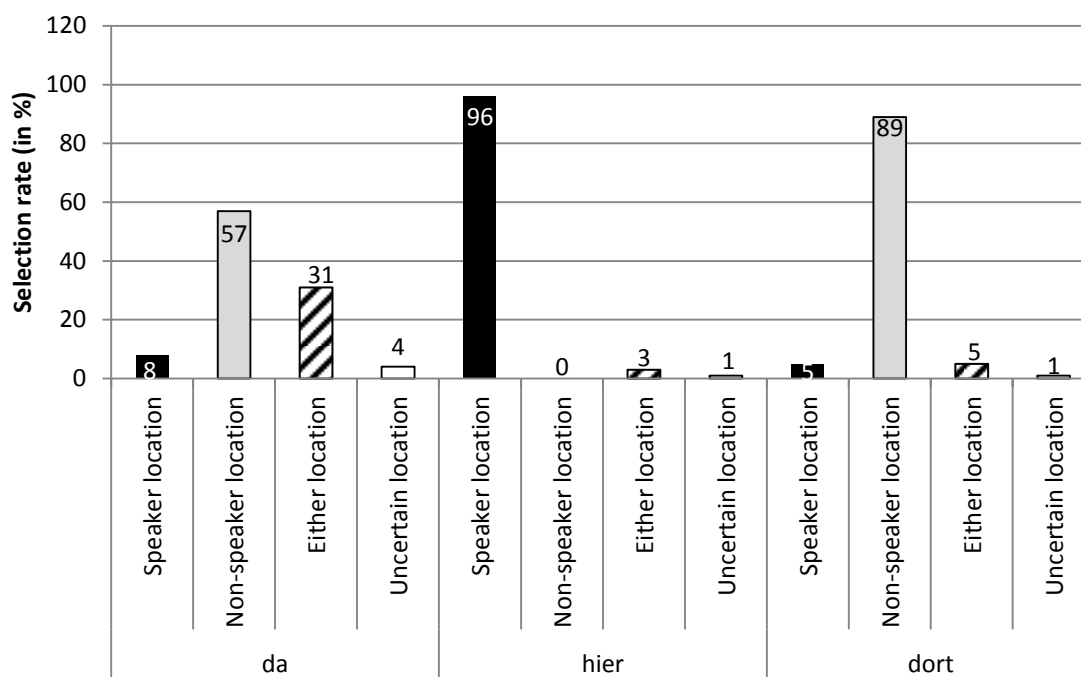


Figure 18 Highly-proficient NNS selection of speaker location (Task 2)

Highly-proficient NNS selection of speaker location based on demonstrative adverb use

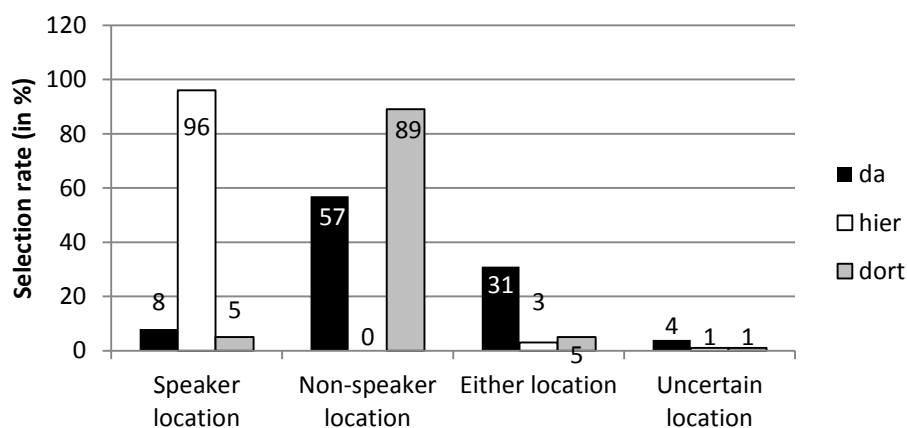


Figure 19 Highly-proficient NNS interpretation of speaker location (Task 2)

Table 22 Statistical comparisons of native speakers vs. other groups (Task 2)

	Native speakers vs.	First-year learners	Second-year learners	Upper-level learners	Highly- proficient NNS
da	speaker location	P<0.001	n.s.	n.s.	n.s.
	non-speaker location	n.s.	n.s.	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
hier	speaker location	P<0.0001	n.s.	n.s.	n.s.
	non-speaker location	P<0.05	n.s.	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
dort	speaker location	P<0.001	P<0.01	n.s.	n.s.
	non-speaker location	P<0.0001	P<0.001	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.

Table 23 Statistical comparisons of first-year learners vs. other groups (Task 2)

	First-year learners vs.	Second-year learners	Upper-level learners	Highly- proficient NNS	Native speakers
da	speaker location	n.s.	$P < 0.01$	$P < 0.001$	$P < 0.001$
	non-speaker location	n.s.	$P < 0.01$	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
hier	speaker location	n.s.	$P < 0.01$	$P < 0.0001$	$P < 0.0001$
	non-speaker location	n.s.	n.s.	$P < 0.05$	$P < 0.05$
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
dort	speaker location	n.s.	$P < 0.05$	$P < 0.001$	$P < 0.001$
	non-speaker location	n.s.	n.s.	$P < 0.0001$	$P < 0.0001$
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.

Table 24 Statistical comparisons of second-year learners vs. other groups (Task 2)

	second-year learners vs.	First-year learners	Upper-level learners	Highly proficient NNS	Native speakers
da	speaker location	n.s.	n.s.	n.s.	n.s.
	non-speaker location	n.s.	n.s.	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
hier	speaker location	n.s.	n.s.	n.s.	n.s.
	non-speaker location	n.s.	n.s.	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
dort	speaker location	n.s.	n.s.	$P < 0.01$	$P < 0.01$
	non-speaker location	n.s.	n.s.	$P < 0.0001$	$P < 0.001$
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.

Table 25 Statistical comparisons of upper-year learners vs. other groups (Task 2)

	upper-year learners vs.	First-year learners	Second-year learners	Highly proficient NNS	Native speakers
da	speaker location	$P < 0.01$	n.s.	n.s.	n.s.
	non-speaker location	$P < 0.01$	n.s.	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
hier	speaker location	$P < 0.01$	n.s.	n.s.	n.s.
	non-speaker location	n.s.	n.s.	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
dort	speaker location	$P < 0.05$	n.s.	n.s.	n.s.
	non-speaker location	n.s.	n.s.	$P < 0.0001$	n.s.
	either locating	n.s.	n.s.	$P < 0.01$	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.

Table 26 Statistical comparisons of highly-proficient NNS vs. other groups (Task 2)

	Highly-proficient NNS vs.	First-year learners	Second-year learners	Upper-level learners	Native speakers
da	speaker location	$P < 0.001$	n.s.	n.s.	n.s.
	non-speaker location	n.s.	n.s.	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
hier	speaker location	$P < 0.0001$	n.s.	n.s.	n.s.
	non-speaker location	$P < 0.05$	n.s.	n.s.	n.s.
	either locating	n.s.	n.s.	n.s.	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.
dort	speaker location	$P < 0.001$	$P < 0.01$	n.s.	n.s.
	non-speaker location	$P < 0.0001$	$P < 0.0001$	$P < 0.0001$	n.s.
	either locating	n.s.	n.s.	$P < 0.01$	n.s.
	uncertain location	n.s.	n.s.	n.s.	n.s.

CHAPTER 5 NATIVE SPEAKER SURVEY DATA

In this chapter, the native speaker data from the study discussed in Chapter 4 will be examined without comparison to the other four participant groups. Of the five participant groups, the native speaker group, with 107 respondents, was the largest group. The group was nearly three-quarters female and nearly three-quarters of the respondents were between 18-34 years of age; Table 27 presents an overview of the demographic characteristics of the native speakers. This chapter will first consider the native speaker group as one set to look for acceptance and interpretation patterns and then analyze the native speaker results based on regional background in order to consider the possibility of regional variation in native speaker judgments and usage.

Native speaker interpretations and grammaticality judgments

The acceptability judgments from Task 1 indicate that native speakers treat *hier*, *da*, and *dort* differently depending on the situation/location being described. As shown in Table 28, acceptance rates across the seven items ranged from 48-97% for *da*, 1-97% for *dort*, and 9-100% for *hier*. To determine the influence that the scenario had on acceptance rates, Bonferroni multiple comparisons *t*-tests were conducted using GraphPad Prism 5 on each item paired with each of the other item. For each item pair, the statistical significance in the different acceptance rates for each of the three adverbs was calculated. Statistically significant differences were found between the acceptance rates of at least two of the adverbs for all items except for the pair of items 11 and 12, for which no statistically significant difference was found between the acceptance rates of any of the adverbs. The lack of statistical significance in this pair is not surprising; the item pair serves as a control because the scenario in each case involves an individual speaking to another individual in the same room asking whether the location of a third

Table 27 Demographic characteristics of native speaker participant group

<i>Total participants</i>	<i>Gender</i>		<i>Age range</i>					
	Female	Male	18-24	25-34	35-44	45-54	55-64	≥ 65
107	79	28	25	53	7	8	8	5
100%	74%	26%	24%	50%	7%	7%	7%	5%

Table 28 Task 1 summary of native speaker acceptance of *da*, *dort*, and *hier* by item

	Item pair	10	11	12	13	14	15	16
Acceptance in %								
<i>da</i>		97	95	95	69	88	48	95
<i>dort</i>		2	1	1	88	89	20	97
<i>hier</i>		39	84	88	12	28	100	9

Table 29 Task 1, Item 10: NS significant differences in acceptance rates

	Item pair	10-11	10-12	10-13	10-14	10-15	10-16
Statistical significance							
<i>da</i>		n.s.	n.s.	****	n.s.	****	n.s.
<i>dort</i>		n.s.	n.s.	****	****	**	****
<i>hier</i>		****	****	****	n.s.	****	****

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 30 Task 1, Item 11: NS significant differences in acceptance rates

	Item pair	11-10	11-12	11-13	11-14	11-15	11-16
Statistical significance							
Da		n.s.	n.s.	****	n.s.	****	n.s.
dort		n.s.	n.s.	****	****	***	****
hier		****	n.s.	****	****	*	****

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 31 Task 1, Item 12: NS significant differences in acceptance rates

	Item pair	12-10	12-11	12-13	12-14	12-15	12-16
Statistical significance							
Da		n.s.	n.s.	****	n.s.	****	n.s.
Dort		n.s.	n.s.	****	****	**	****
Hier		****	n.s.	****	****	n.s.	****

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 32 Task 1, Item 13: NS significant differences in acceptance rates

	Item pair	13-10	13-11	13-12	13-14	13-15	13-16
Statistical significance							
da		****	****	****	**	***	****
dort		****	****	****	n.s.	****	n.s.
hier		****	****	****	**	****	n.s.

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 33 Task 1, Item 14: NS significant differences in acceptance rates

	Item pair	14-10	14-11	14-12	14-13	14-15	14-16
Statistical significance							
da		n.s.	n.s.	n.s.	**	****	n.s.
dort		****	****	****	n.s.	****	n.s.
hier		n.s.	****	****	**	****	**

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 34 Task 1, Item 15: NS significant differences in acceptance rates

	Item pair	15-10	15-11	15-12	15-13	15-14	15-16
Statistical significance							
da		****	****	****	****	****	****
dort		**	***	**	n.s.	****	****
hier		****	*	n.s.	n.s.	****	****

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

Table 35 Task 1, Item 16: NS significant differences in acceptance rates

	Item pair	16-10	16-11	16-12	16-13	16-14	16-15
Statistical significance							
da		n.s.	n.s.	n.s.	***	n.s.	****
dort		****	****	****	****	n.s.	****
hier		****	****	****	****	**	****

P values of statistical significance are designated with asterisks (P<0.05-*; P<0.01-**; P<0.001-***; P<0.0001-****). 'n.s.' indicates results are not statistically significant.

individual is somewhere other than that room, but still on the premises. The items are reprinted here (full item results along with the items' associated drawings are located in Appendix D).

- (54) Task 1, Item 11: A father arrives at home. He sees his daughter in the kitchen, greets her, and asks *Ist die Mama X?* ('Is Mom X?')
- (55) Task 1, Item 12: Two colleagues are chatting in the copy room at work. One of them wants to know if their boss, Martina, is in the office. He asks, *Ist Martina X?* (Is Martina X?)

The similarity in acceptance rates for these two items suggests a degree of consistency in the native speakers' use of the presented scenarios in making their acceptability judgments.

For each adverb, there are a total of 21 item pairs. The results for the tests for statistical significance are found in Table 29-Table 35. The situation had the most effect on the acceptance rates for *hier*, for which 18 of the 21 pairs exhibited significant differences in native speaker acceptance. Next most influenced by situation was *dort*, 15 of the 21 pairs with *dort* differed by statistically significant margins. The adverb acceptance least influenced by the nature of the situation was *da*, with only slightly more than half (11/21) of the pairs showing a significant difference in acceptance rate. These tendencies suggest that *hier* has the most clearly defined usage pattern of the three adverbs, that *dort* is also strongly influenced by situation, and that *da* has for some native speakers a flexible use. This flexibility is indicated by the fact that the lowest acceptance rate for *da* was 48%. In that item, Item 15, all of the native speakers accepted *hier* as a possible choice, 20% accepted *dort*, and 48% accepted *da*:

- (56) Task 1: Item 15. A real estate agent is showing a home to Marianne and Johannes. Johannes is standing in the home's kitchen, admiring it, and calls out to his wife, *Ich könnte X toll kochen.* (I could cook well X.)

The native speaker group does not treat *da* as a superfluous double of the other two adverbs. If it were, we would expect either to see acceptance rates for *da* consistently at or near 100% (then showing universal replacement characteristics) or an acceptance rate at the same level as either *hier* or *dort* in each item. While for some items, the acceptance of *da* does mirror the acceptance of either *hier* or *dort*, that is not always the case. Item 14 and Item 16 show acceptance rates for *da* and *dort* within 2% of each other, and Item 11 and 12 show acceptance rates for *da* and *hier* within 11% of each other, but the other three items have *da* acceptance rates that differ by at least 50% from each of the other two acceptance rates. *Da* is treated as an independent word with its own usage pattern.

Having established that native speakers treat *hier*, *da*, and *dort* differently when judging their acceptability, we now turn to an examination of native speakers' assignment of locations to the adverbs in Task 2. The native speaker location assignment data is grouped by adverb in Figure 20 and by location selection in Figure 21. The task, by forcing the participants to make some kind of choice (though the choice could be that they are uncertain) attempts to assess participants' default interpretive instincts. While the task could have been designed as a series of true/false questions (e.g., 'Is it possible that the speaker is in Munich?', 'Is it possible that the speaker is not in Munich?', etc.), such a survey design was rejected because it could have the tendency to push some subjects to over-think their answers, thinking of unlikely scenarios to justify a given response. For that reason, participants were required to make some manner of a single selection.

The native speakers rarely expressed uncertainty in their selection, choosing that option only 1% of the time for all three adverbs. While that might indicate that the native speakers have clear interpretation opinions about the meaning indicated by each of the spatial adverbs under investigation, it might also be that some participants used the 'either location' flexible location assignment as an alternative to selecting that the

location was uncertain based on the given sentence. The rate at which an uncertain location was selected, however, is smaller than in the learner groups, suggesting that perhaps the native speaker group did consider—but reject—expressing uncertainty.

Each adverb had one selection location that predominated for its interpretation. The native speaker subjects assigned *da* (60%) and *dort* (78%) a non-speaker location the majority of the time. The assignment of a speaker location—at 6%— to *da* and *dort* was equally as rare with each adverb: neither adverb necessitated, for most respondents, that the location being referenced was the location of the speaker. The 18% gap between the 60% non-speaker selection rate for *da* and the 78% rate for *dort* is explained by the higher selection of an ambiguous location (32%) with *da* than with *dort* (15%). Even though *da* was interpreted as indicating a non-speaker location the majority of the time, nearly one-third of the time native speakers indicated that it could be used to indicate either a speaker or non-speaker location. Unambiguous speaker locations were assigned overwhelmingly to *hier* (92%), suggesting that native speakers view *hier* as providing definitive locative information almost all of the time. While interpretations of *dort* were predominantly of a non-speaker location, over one-fifth of the time *dort* was given either a speaker location or flexible location assignment (compared with 8% non-speaker location and flexible location combined with *hier*). Based on the native speaker data, it appears that *da* shares properties with *dort* and in addition to its primary role as an indicator of non-speaker location, can be used to indicate either a speaker or non-speaker location. This latter flexibility distinguishes it from being merely a *dort* alternative.

Some of the items focused on an adverb use that could be viewed as anaphoric and not necessarily deictic in the strictest sense of the word. These items were based on the examples presented from Lenz and Ehrich in Chapter 1. To assess the validity of their claims, items were included to determine native speaker congruence with the predictions of Lenz and Ehrich. Task 1 included some items designed to examine Ehrich's analysis (parallel in structure to her examples), while some of the items in Task

2 were based on sentences considered by both Ehrich and Lenz. In Chapter 1, Ehrich's analysis of *da* was presented along with some of the examples she uses to support an analysis of *da* that places it in a special, more flexible position than either *hier* or *dort*. Specifically, she claimed that in sentences like (23) and (24) only *da* was possible and that both *dort* and *hier* were ungrammatical (1982:60):

- (23) Peter raucht im Bett und Paul trinkt da/*hier/*dort.
Peter smokes in bed and Paul drinks there/*here/*there
- (24) Johannes wünscht sich einen Sandkasten. Er will da/*hier/*dort Schlösser und
Johannes wants a sandcastle. He wants there/*hier/*dort castles and

Burgen bauen.
forts build

To test this claim, item 13 was designed to pose a scenario similar to that posed by Ehrich's example:

- (57) Task 1, Item 13. Paul likes to watch TV in bed. His brother Peter prefers to read in bed. Agnes, Paul's wife, is describing these habits to a friend and says, Peter liest im Bett und Paul sieht *X* fern. (Paul reads in bed and Paul watches television *X*.)

The finding in this study, however, does not agree with Ehrich's hypothetical analysis: 88% of the native speakers accepted *dort* and 69% accepted *da*. (Only 12% accepted *hier*, which is not inconsistent with Ehrich's claim that *hier* would be ungrammatical in this situation. Similarly, item 14 presented a scenario that, while not identical to Ehrich's (25), follows a similar pattern of referring to a hypothetical location:

- (58) Task 1, Item 14. Marianne and Johannes are looking for a new home. Having an office in her home is important to Marianne, and she tells her real estate agent that she needs such a room so that she can write, saying, *X* will ich schreiben. (*X* I want to write.)

As with Item 13, the findings in this study differ from Ehrich's claim: *dort* was accepted by 89% percent of the native speakers and *da* was accepted by 88%. Almost one-third

(28%) accepted the use of *hier*. While Ehrich's analysis is approaching 30 years old, it is unlikely that the use of *da* and *dort* have changed that rapidly in the span of 30 years so as to show such a different result than Ehrich's claim would predict. The likely source of the difference is that the use of these spatial adverbs is not something that can be explicitly explained by most speakers; relying on one's own intuitions when making linguistic claims in this area seems to have the potential to create restrictions that may not actually exist. The actual native speaker grammaticality judgments indicate that the meaning assigned by *da* may not be that different than that assigned through the use of *dort*. The flexibility in the use of *da* may suggest an inflexibility in the use of *dort* that does not actually exist in actual language use. While *da* may not necessarily indicate a clear locative reference, perhaps that reference is not always clear when *dort* is used instead.

The native speaker grammaticality judgment data from Task 1, then, did not agree with the predictions in the literature. To determine the situation with respect to location interpretations, examples from Task 2 will be compared with the interpretations suggested by Ehrich and Lenz. Each presents examples dealing with the speaker's geographic location:

- (22) Karl Valentin ist in München geboren, und er ist hier/dort/da auch aufgewachsen.
'Karl Valentin was born in Munich, and he also grew up here/there/here-there'
(Lenz (2001:48-49))
- (23) Ich bin vor vier Jahren von Düsseldorf nach Nijmegen gegangen und
'Four years ago I moved from Düsseldorf to Nijmegen,

hier/dort/da will ich vorläufig bleiben
and here/there/here-there I want to stay for some time.' (Ehrich (1982:56))

Three items are directly parallel to (22):

- (59) Task 2, Item 19: Thomas says, *Thomas sagt*
„Ich bin in Berlin geboren, und ich bin hier auch aufgewachsen.“ *I was born in Berlin, and I also grew up 'HIER'.* Where is Thomas right now?

- (60) Task 2, Item 17. Martina says, *Martina sagt*, „Ich bin in Freiburg geboren, und ich bin da auch aufgewachsen.“ *I was born in Freiburg, and I also grew up 'da'.* Where is Martina right now?
- (61) Task 2, Item 22: Monika says, *Monika sagt*, „Ich bin in London geboren, und ich bin dort auch aufgewachsen.“ *I was born in Lond, and I also grew up THERE.* Where is Monika right now?

Lenz's analysis predicts that the use of *hier* would result in an interpretation that the speaker is currently in the city mentioned in the first part of the sentence, *dort* would mean that the speaker is definitely not currently in the city mentioned in the first part of the sentence, and *da* would give no information about the current location of the speaker. This prediction is only partly borne out in the data. The prediction for the meaning of *hier* is supported by the native speaker interpretations: *hier*, as shown in Item 19 ((57) above), is interpreted by 93% of the native speakers as necessarily indicating that Thomas is currently in Berlin, while only 2% said that Thomas was not in Berlin, and 4% that he could be in Berlin or some other city. With both *da* and *dort*, however, the data were similar: most of the native speakers interpreted both of these spatial adverbs as necessarily indicating that the speaker was not currently in the city mentioned. That is somewhat congruent for Lenz's prediction with *dort*, but does not reflect the ambiguity that would be expected with the use of *da*. Furthermore, in both cases a significant minority indicated that the speaker could be either in the named city or somewhere else. With Item 17 (*da*), 66% of the native speakers indicated that Martina was definitely not in Freiburg, 30% interpreted her location as being either Freiburg or some other city; and 1% responded that she was definitely in Freiburg. Similarly, in Item 22 (*dort*), 74% interpreted Monika as being located somewhere other than London and 24% indicated that she could be either in London or some other city. At least for a significant minority of native speakers, *dort* has a similarly ambiguous location interpretation. Furthermore, *da* is treated much like *dort*, and for most speakers, *da* does not convey an inherent

ambiguity. The strong tendency of *hier* to denote co-location reduces the ability for *da* to function as a truly neutral choice.

Although similar to Lenz's examples, items that parallel Ehrich's sentence (23) were included as Items 20, 21, and 18, repeated below:

- (62) Task 2, Item 20: Claudia says, *Claudia sagt*,
„Ich bin vor zwei Jahren nach Hannover umgezogen, und hier will ich bleiben.“ *I moved to Hannover two years ago, and I want to stay 'HIER'.* Where is Claudia right now?
- (63) Task 2, Item 21: Sabine says, *Sabine sagt*
„Ich bin letztes Jahr nach Dortmund umgezogen, und da will ich bleiben.“ *I moved to Dortmund last year, and I want to stay 'DA'.* Where is Sabine right now?
- (64) Task 2, Item 18: Tobias says, *Tobias sagt*
„Ich bin 2004 nach Iowa City umgezogen, und dort will ich bleiben.“ *I moved to Iowa City in 2004, and 'DORT' I want to stay.* Where is Tobias right now?

The predictions here are the same as those made by Lenz. As with Items 19, 17, and 22, the actual data do not fully mesh with those predictions. The interpretation of *hier* (Item 20, (60) above) is largely as expected, with 93% of the native speakers indicating that Claudia is definitely located in Hannover. Items 21 (*da*, (61) above) and 18 (*dort*, (62) above) differ from Ehrich's predictions and additionally deviate to some extent from their cousins in Items 17 and 22. While the plurality of native speaker respondents selected a location interpretation of a location definitively not the same as the city mentioned (48% with *da* and 58% with *dort*), significant minorities interpreted the speaker's location as being necessarily identical with that of the city mentioned (18% with *da* and 24% with *dort*). It is possible that this variation is not a result of truly differing interpretations in these items when compared with the similar questions, but rather a result of differing interpretations in the scope of the question. Some participants may have interpreted "Where is X right now?" as indicating a broader location in the world as opposed to a specific location at the time of the utterance. Nonetheless, large minorities, as with Items 17 and 22, expressed a flexible interpretation of the indicated location (33% with *da* and

NS selection of speaker location (by adverb)

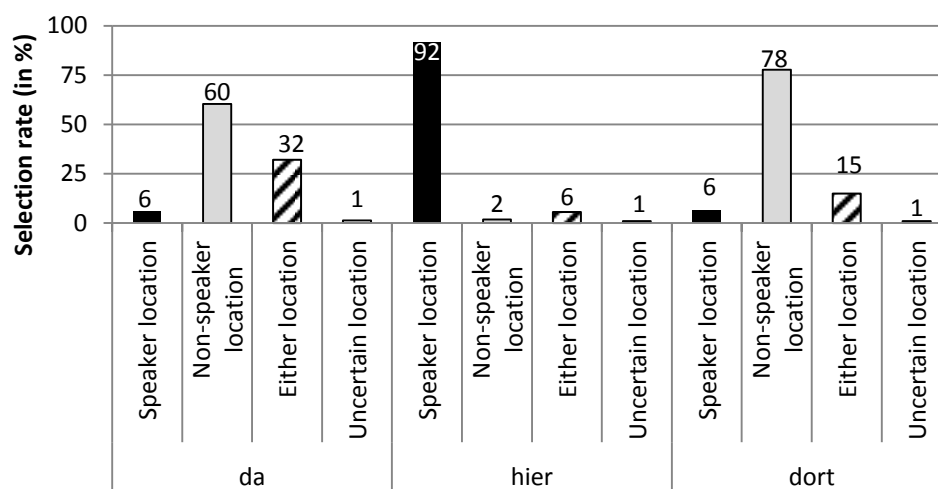


Figure 20 Native speaker interpretation of speaker location by adverb (Task 2)

NS selection of speaker location based on demonstrative adverb use

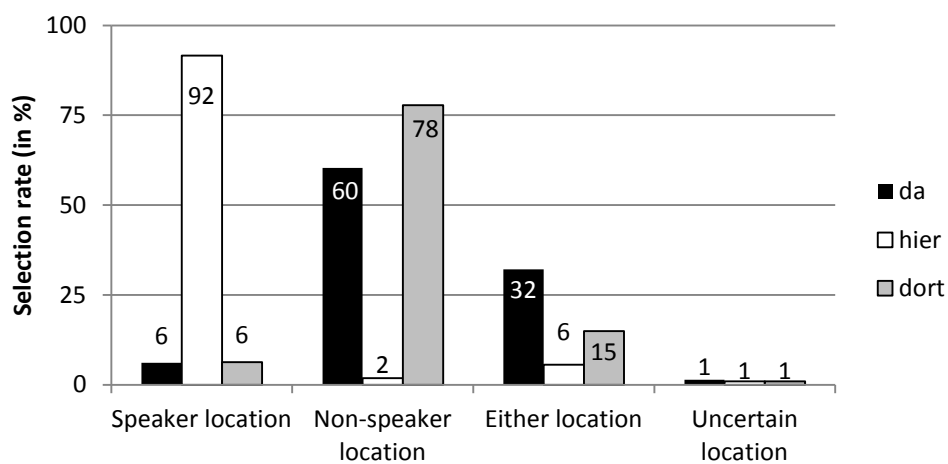


Figure 21 Native speaker interpretation of speaker location by location assignment (Task 2)

17% with *dort*). Therefore, the idea that *da* has more similarities with *dort* than it does with either *hier* or an abstract, theoretical neutral locative adverb gains further support.

Regional variation in native speaker data

This section will consider the possible influence of regional variation on the native speaker grammaticality judgments and location interpretations collected in the 107 native speaker responses to the two tasks. Due to the sources used to recruit native speaker participants, while participants came from 11 of the 16 German states in addition to Austria, the distribution within those regions is not balanced. This severe lack of balance, combined with the small number of respondents from some regions precludes the use of a statistical analysis to examine regional variation in the native speaker participant group. Instead, the focus will be on presenting summary statistics and using maps where appropriate to show relative relationships.

There is some limited existing data concerning the regional variation of the use of the spatial adverbs under consideration here. When examining the native speaker data in terms of geographic distribution, taking an historical look at Georg Wenker's *Sprachatlas des deutschen Reichs*, based on data collected from 1888-1923 and now available online through the Digitaler Wenker-Atlas (DiWA) (Schmidt & Herrgen 2001-2011), provides an opportunity for comparisons. Wenker's sentence 14 and its associated depiction in Map IV-181 shows a north-south dividing line around the Main river in the selection of *hier* versus *da*, with the northern group largely choosing *hier* or a *hier*-variant (e.g., *huier*, *heier*, *hui*, *hei*) and the southern group largely selecting *da* or one of its variants (e.g., *do*, *dar*). The sentence, as Wenker wrote it (Schmidt & Herrgen 2001-2011), presents a sentence context that implies that the speaker is co-located with the location identified by the chosen word:

- (65) Mein liebes Kind, bleib *hier/da* unten stehn, die bösen Gänse beißen Dich todt.
'My dear child, stay down HERE, the evil geese will bite you to death.'

The north-south divide suggests that the selection of *hier* versus *da* to indicate speaker location is influenced by region, or at least was at the time the data were collected a century ago. A modern analogue to Wenker's Sprachatlas has emerged in the 21st century, utilizing Internet self-reporting to replace in-person, labor-intensive interviews and elicitations.

The Atlas zur deutschen Alltagssprache (AdA) is a project of researchers at the University of Augsburg which has used a series of online questionnaires to create maps of the distribution of lexical and grammatical usage in German-speaking Europe. The surveys collect demographic information in addition to geographic information, but the published maps only show the aggregate results by postal code. While many of the target items bear little resemblance to Wenker's data, other items can be compared with Wenker's maps. One such example is a map showing the selection of *hier* v. *da* in the sentence (Elspaß & Möller 2005):

- (66) Wir wohnen schon seit 10 Jahren *X*.
 ‘We have been living *X* for 10 years.’

The distribution of the use of *hier*, *da/do*, and the variant *doda* are depicted in the AdA's map, reprinted here as Figure 22. The data are based on 2580 responses received from 432 different cities. The researchers note that the use of *hier* and *da* shows a distribution similar to that found by Wenker, divided along a similar North-South line at the level of the Main. They further claim that “die Arealbildung im alltagssprachlichen Gebrauch hier immer noch mit den dialektalen Verhältnissen um 1900 übereinstimmt”⁵ (Elspaß & Möller 2005). The third selection choice that the researchers include in their map, *doda*, occurs sporadically in the southern region interspersed among uses of *da*. This minor form itself contains *da* and is distributed in the *da*-usage region, and could likely be

⁵ English: ‘The regional distribution in colloquial usage remains consistent here with the dialectal relationships of 1900.’

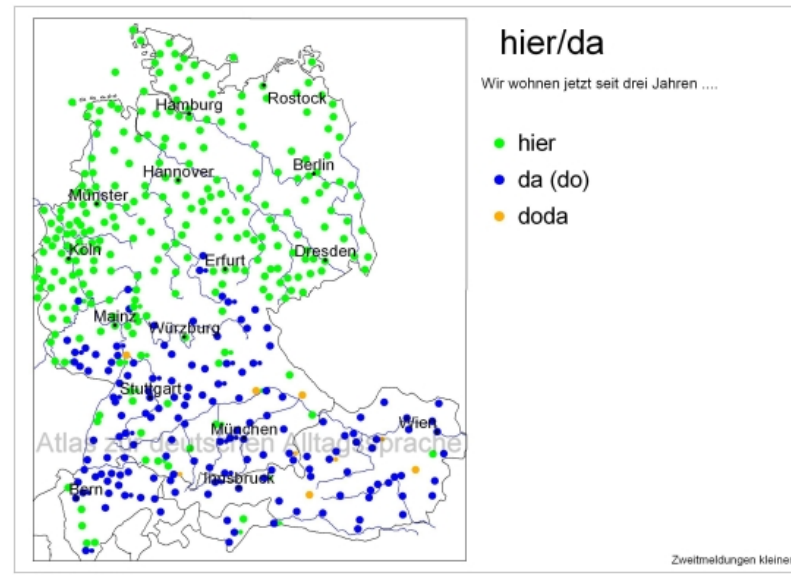


Figure 22 Regional variation for, ‘Wir wohnen jetzt seit drei Jahren *hier/da*’

Source: Stephan Elspaß & Robert Möller. 2005. Atlas zur deutschen Alltagssprache (AdA) (Second Round): http://www.philhist.uni-augsburg.de/lehrstuehle/germanistik/sprachwissenschaft/ada/runde_2/ (01 October 2010).

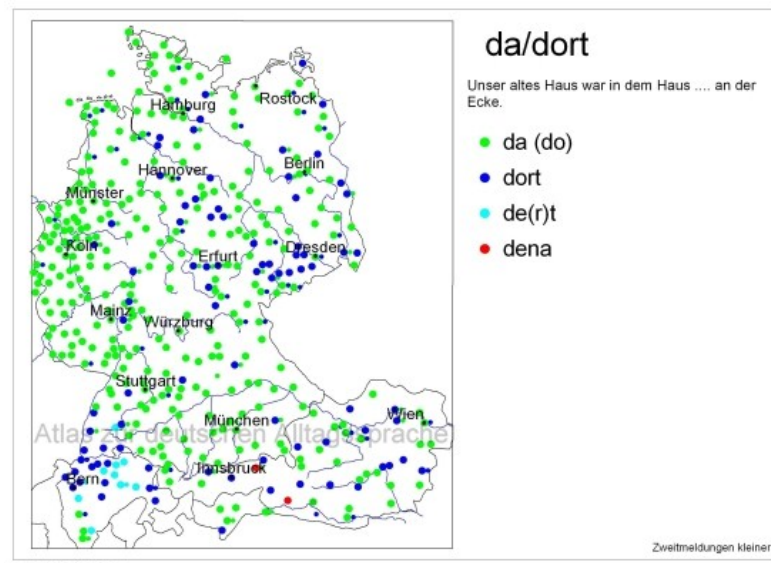


Figure 23 Regional variation for ‘Unser altes Haus war in dem Haus *da/dort* an der Ecke’

Source: Stephan Elspaß & Robert Möller. 2005. Atlas zur deutschen Alltagssprache (AdA) (Second Round): http://www.philhist.uni-augsburg.de/lehrstuehle/germanistik/sprachwissenschaft/ada/runde_2/ (01 October 2010).

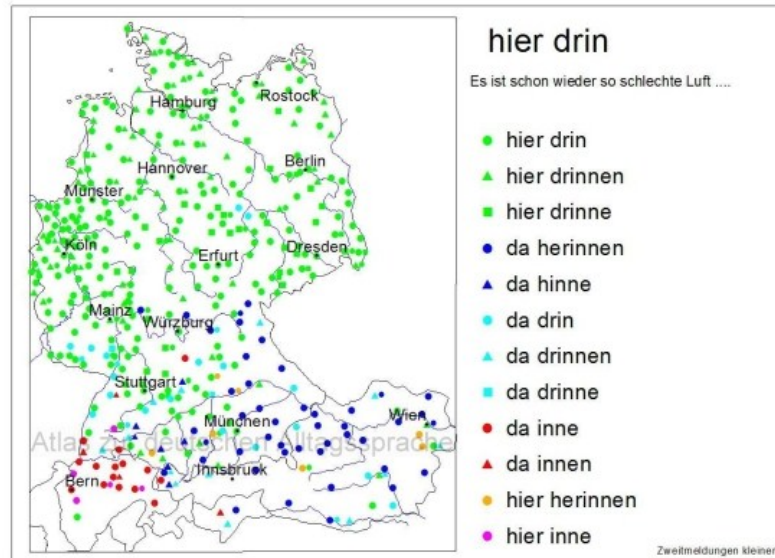


Figure 24 Regional variation for ‘Es ist schon wieder so schlechte Luft [hier drin]’

Source: Stephan Elspaß & Robert Möller. 2006. Atlas zur deutschen Alltagssprache (AdA) (Third Round): http://www.philhist.uni-augsburg.de/lehrstuehle/germanistik/sprachwissenschaft/ada/runde_3/ (01 October 2010).

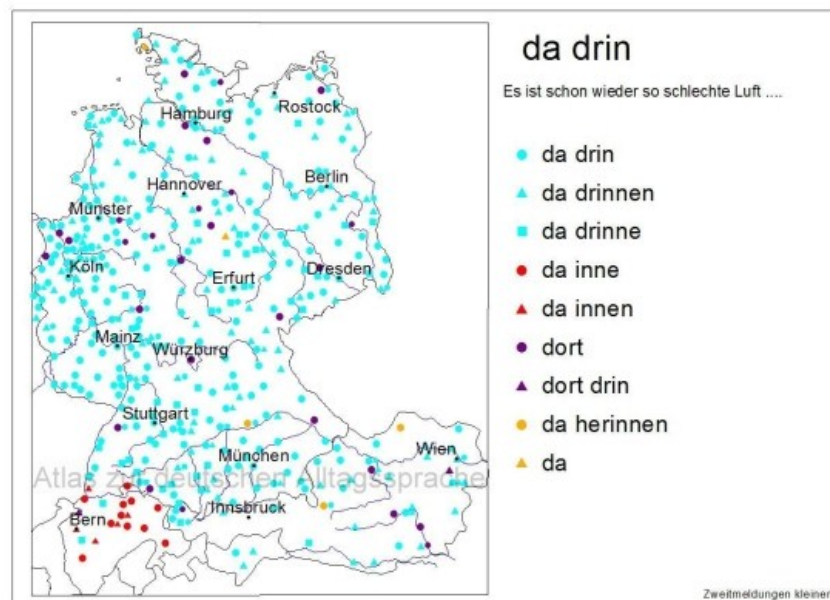


Figure 25 Regional variation for ‘Es ist schon wieder so schlechte Luft [da drin]’

Source: Stephan Elspaß & Robert Möller. 2006. Atlas zur deutschen Alltagssprache (AdA) (Third Round): http://www.philhist.uni-augsburg.de/lehrstuehle/germanistik/sprachwissenschaft/ada/runde_3/ (01 October 2010).

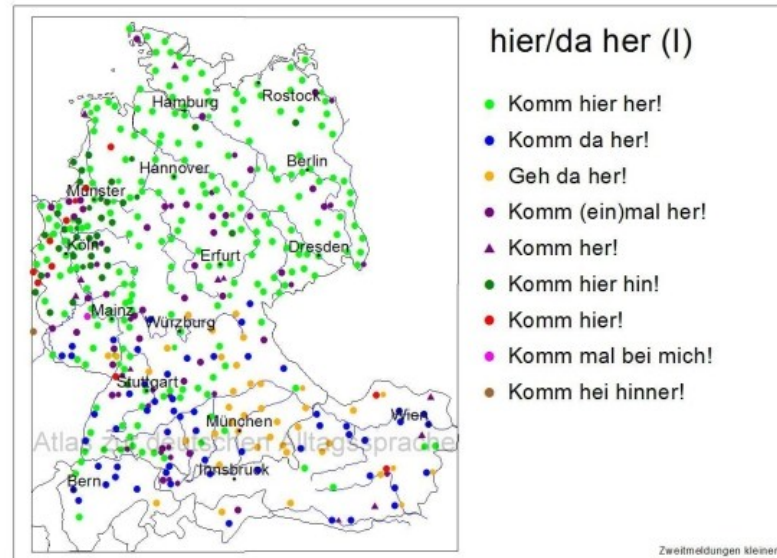


Figure 26 Regional variation for ‘Komm *hier/da her*’

Source: Stephan Elspaß & Robert Möller. 2006. Atlas zur deutschen Alltagssprache (AdA) (Third Round): http://www.philhist.uni-augsburg.de/lehrstuehle/germanistik/sprachwissenschaft/ada/runde_3/ (01 October 2010).

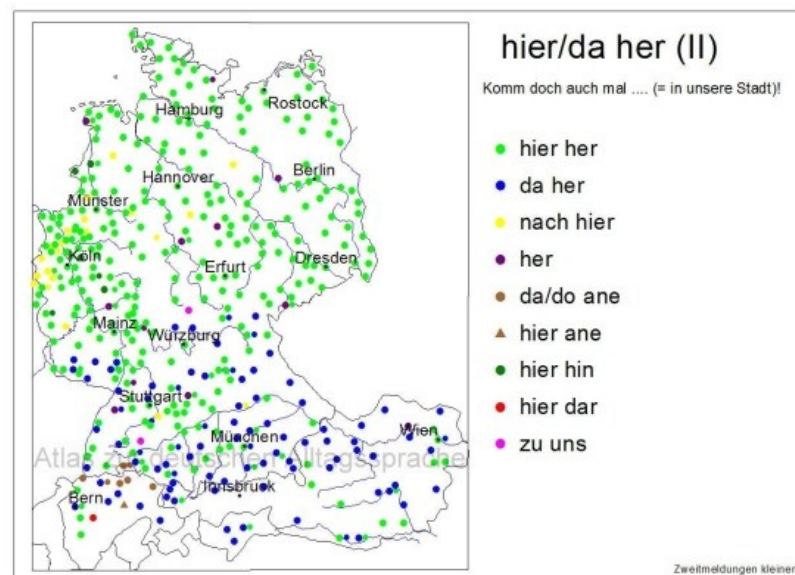


Figure 27 Regional variation for ‘Komm doch auch mal ...’

Source: Stephan Elspaß & Robert Möller. 2006. Atlas zur deutschen Alltagssprache (AdA) (Third Round): http://www.philhist.uni-augsburg.de/lehrstuehle/germanistik/sprachwissenschaft/ada/runde_3/ (01 October 2010).

treated simply as a *da* variant and not separated out graphically on the map. While the *hier/da* map presents a rather natural North/South divide, a *da/dort* map for another item from the same AdA survey round shows a very different result. The item, repeated below in (50), showed the overwhelming selection of *da* with *dort* interspersed throughout the mapped area (Elspaß & Möller 2005):

- (67) Unser altes Haus war in dem Haus *da/dort* an der Ecke.
 ‘Our old house was in the house DA/DORT on the corner.’

The map for this patchwork distribution is reprinted here as Figure 23. The item itself suggests a scenario in which the speaker is referring to a location nearby, but not exactly his/her own location. The lack of regionally-constrained variation suggests that *da* can for many speakers function as an English *there* equivalent to indicate a location at least somewhat distant from his/her present location.

The third round of the AdA collected data from April 2005-July 2006, receiving 2626 responses from 399 distinct cities. (Elspaß & Möller 2006). There are three items of interest to this chapter. Maps displaying the selection of *hier drin* ‘in here’ versus *da drin* ‘in here/there’ are presented in Figure 24. These choices were made to complete the following sentence:

- (68) Es ist schon wieder so schlechte Luft X [=in diesem Raum, wo wir sind].
 ‘There is already bad air again X [=in this room where we are].’

The map here in Figure 24 presents largely the same picture as previously seen in Figure 22: *hier drin* and variants dominate in the North, while usage of *da drin* and similar forms are found predominantly in the South. The researchers note that “die Unterscheidung zwischen hier (= beim Sprecher) und da (woanders) ist südlich des Mains nicht heimisch, stattdessen wird in den meisten Gebieten für beides da verwendet”⁶

⁶ English: ‘The differentiation between *hier* (=by the speaker) and *da* (=somewhere else) is not native south of the Main; instead, in most areas *da* is used for both.’

(Elspaß & Möller 2006). In contrast to this map, however, is Figure 25, presenting the results from completing the same sentence but without the context that the speaker is in the location being referred to. When the speaker is referring to a location from outside of that location, phrases using *da* or a *da*-variant were the most frequent throughout the German-speaking area identified on the map; usage of *dort* and *dort drin* were scattered throughout the map, but not clustered in any one region. The last two items from AdA that will be considered here deal with commands to ‘come here’. Figure 31 reprints the map from the AdA that shows that the selection of *Komm hier her!* ‘Come here!’ dominate in the North, while *Komm da her!* ‘Come here!’ and *Geh da her!* ‘Come/walk (over) here!’ are found mostly in the South. The item the results of which are presented in Figure 32 added additional context (Elspaß & Möller 2006):

- (69) Komm doch auch mal X [=in unsere Stadt].
 ‘Come [on down] X [=to our city].’

The addition of a rather broad location context (*in unsere Stadt* ‘to our city’) had little effect, though, on the geographic distribution seen in Figure 31. The regional tendencies with respect to prefer *da* over *hier* to refer to a location where the speaker is present show situational and chronological robustness. For many speakers in the North, however, *da* may not have the *hier* (=speaker location) meaning that it can have in the South; many northern speakers selected *da* over *dort* to refer to a location other than where the speaker is, so it is not that these speakers reject the use of *da* in all cases.

Having examined other sources of native speaker data about the use of *hier*, *da*, and *dort*, the discussion now turns to the data gathered in the study reported on in this dissertation. The overall geographic coverage of the native speaker participant group represents a rather broad swath of Germany and Austria (Figure 28), although the sample sizes across the regions are imbalanced. Figure 29 shows the relative sample sizes through the use of a proportionally-sized circle for each German state from which

responses were received. To help improve the validity of the discussion of these results, speakers were divided into three regional groups based on their self-reported geographic background. Nonetheless, true statistical tests of significance by region are precluded by the nature of the overall native speaker participant group.

Since other studies have shown that southern speakers of German are more likely to use *da* to refer to same speaker locations, one would expect such native speakers to choose such a same-speaker interpretation of *da* at a higher rate than speakers from other regions. The regional distribution of the Task 2 native speaker selection data is presented in Table 36; Figure 32 presents a map of this data by German state, and Figure 33 presents the data by German city. While the native speakers only chose a speaker location interpretation for *da* 9% of the time, that rate was higher than the 4% and 7% rates seen in the North and East. More notable, however, is the southern speakers' higher rate of giving *da* a flexible location interpretation—43% compared with 20-29% in the other two regions. Southern speakers assigned *da* a definite non-speaker location 45% of the time, but that rate is less than the 66-73% rates in the other regions. While these data do not support the idea of *da* being strictly neutral, it at least acknowledges the possibility that an ambiguous use may be contemplated by some speakers, and such a use may be more frequently found in the southern region than in the northern region. Furthermore, these results are consistent with the findings of both the AdA and the Wenker dialect atlases:

The location assignments for both *hier* and *dort* did not vary much between the regional groups. Nearly all of the location assignments for *hier* indicated a speaker location, while approximately three-quarters of the assignments of the location indicated by *dort* were a non-speaker location. These patterns were similar in each regional group, suggesting that what inter-group variation there is stems from the interpretations of *da*. While location assignments differed with *da*, acceptability judgments of all three spatial adverbs did not. The aggregate acceptance rates by region and German state shown in

Table 39 and Table 40 show little regional variation, suggesting that any regional variation that may apply to the use and default interpretation of the spatial adverbs may not apply to native speakers' judgments concerning what may be acceptable in a given circumstance.



Figure 28 Geographic locations of NS self-identified region

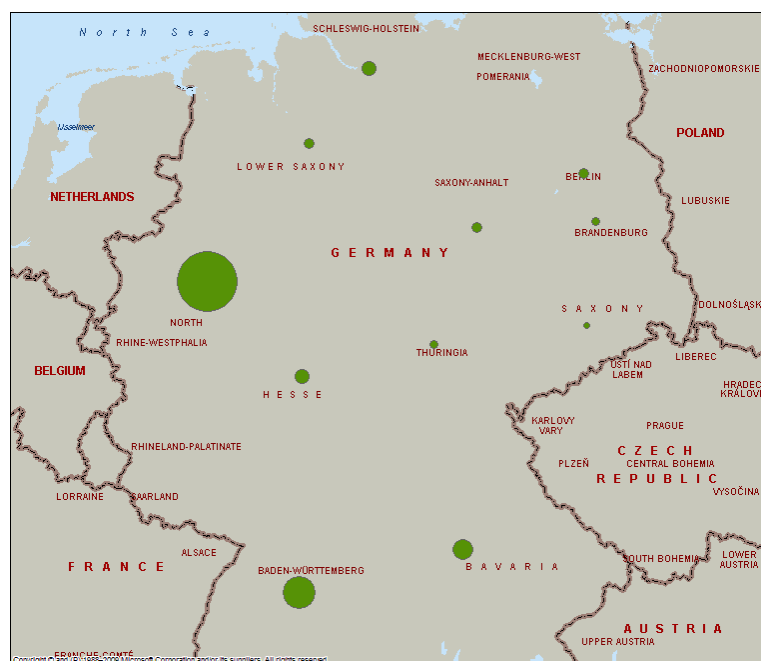


Figure 29 Relative NS sample size, by Bundesland

Table 36 NS interpretation of the location indicated by *da*, by region of Germany (Task 2)

Region of Germany	Speaker location	Non-speaker location	Either location	Uncertain location
Southern	9%	45%	43%	3%
Northern	4%	66%	29%	1%
Eastern	7%	73%	20%	0%

Table 37 NS interpretation of the location indicated by *hier*, by region of Germany (Task 2)

Region of Germany	Speaker location	Non-speaker location	Either location	Uncertain location
Southern	94%	3%	3%	0%
Northern	90%	2%	8%	0%
Eastern	89%	2%	2%	7%

Table 38 NS interpretation of the location indicated by *dort*, by region of Germany (Task 2)

Region of Germany	Speaker location	Non-speaker location	Either location	Uncertain location
Southern	8%	73%	18%	1%
Northern	7%	77%	15%	1%
Eastern	5%	80%	16%	0%

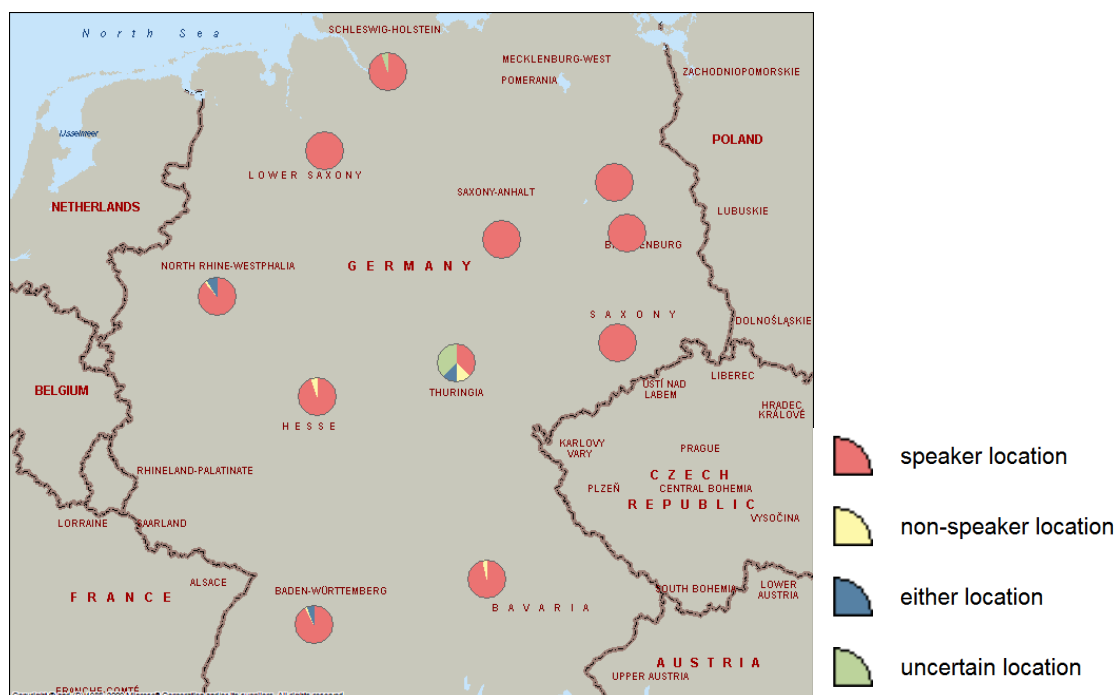


Figure 30 NS location assigned to the use of *hier*, by German Bundesland (Task 2)

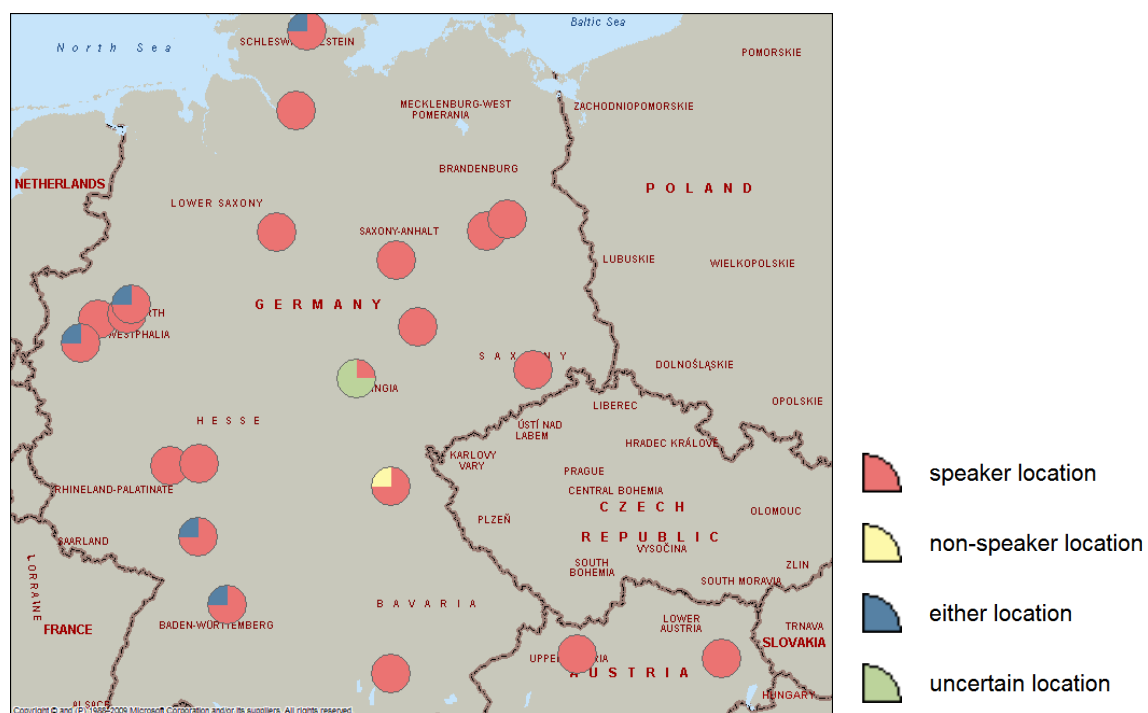


Figure 31 NS location assigned to the use of *hier*, by city (Task 2)

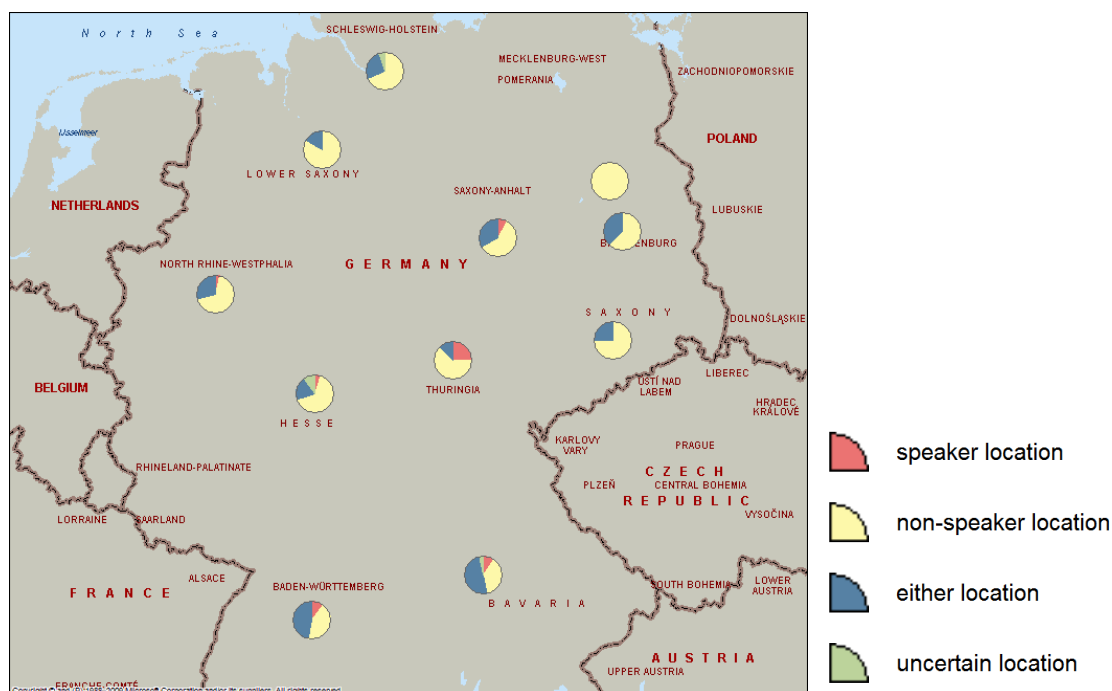


Figure 32 NS location assigned to the use of *da*, by German Bundesland (Task 2)

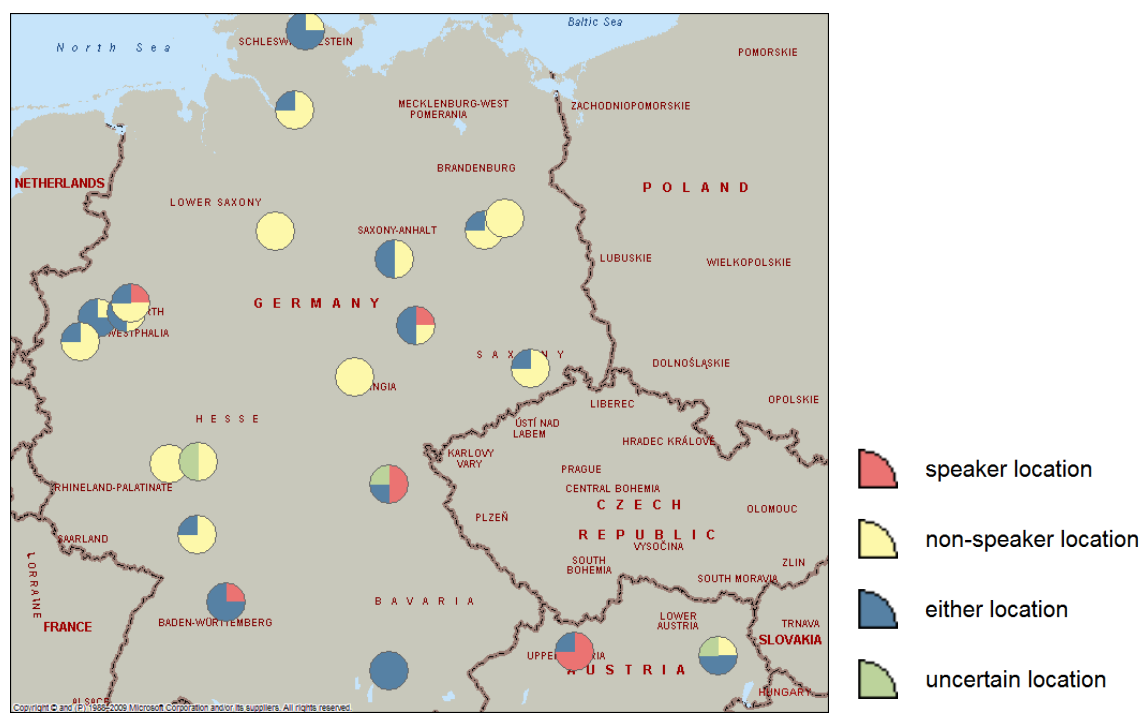


Figure 33 NS location assigned to the use of *da*, by city (Task 2)

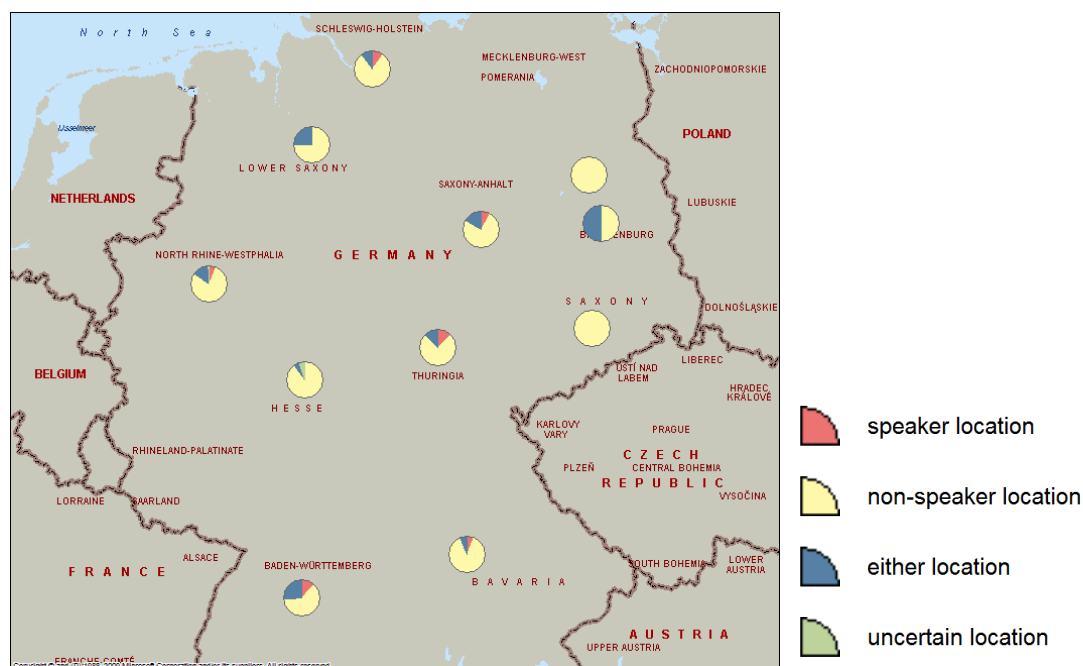


Figure 34 NS location assigned to the use of *dort*, by German Bundesland (Task 2)

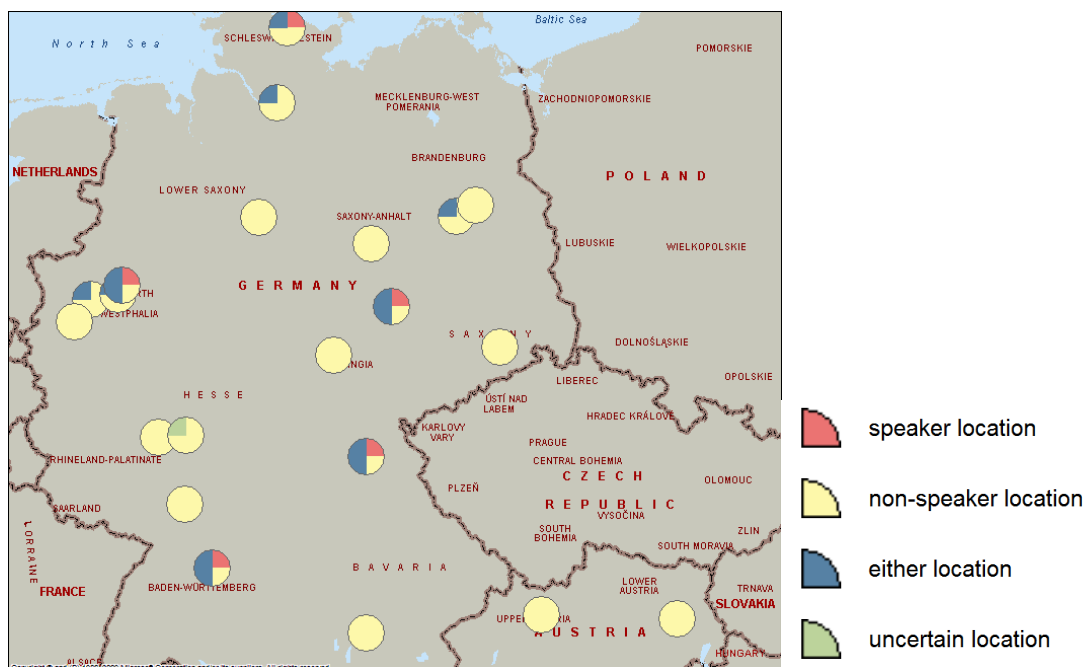


Figure 35 NS location assigned to the use of *dort*, by city (Task 2)

Table 39 NS acceptance of *da*, *dort*, and *hier*, by German Bundesland (Task 1)

Bundesland	Percent acceptance		
	<i>da</i>	<i>dort</i>	<i>hier</i>
Baden-Württemberg (N=17)	55.0	74.1	65.1
Bavaria (N=8)	42.9	71.4	69.6
Berlin (N=3)	57.1	81.0	61.9
Brandenburg (N=2)	42.9	71.4	71.4
Hamburg (N=5)	57.1	77.1	77.1
Hesse (N=5)	54.3	71.4	71.4
Lower Saxony (N=3)	66.7	85.7	66.7
North Rhine-Westphalia (N=47)	50.1	74.0	67.2
Saxony (N=1)	28.6	71.4	28.6
Saxony-Anhalt (N=3)	61.9	71.4	76.2
Thuringia (N=2)	21.4	64.3	71.4

Table 40 NS acceptance of *da*, *dort*, and *hier*, by region of Germany (Task 1)

Region of Germany	Percent acceptance		
	<i>da</i>	<i>dort</i>	<i>hier</i>
Eastern (N=11)	46.8	72.7	66.2
Northern (N=57)	51.8	75.3	67.4
Southern (N=30)	51.7	72.9	67.4

CHAPTER 6 CHILD L1 ACQUISITION

CHILDES corpora

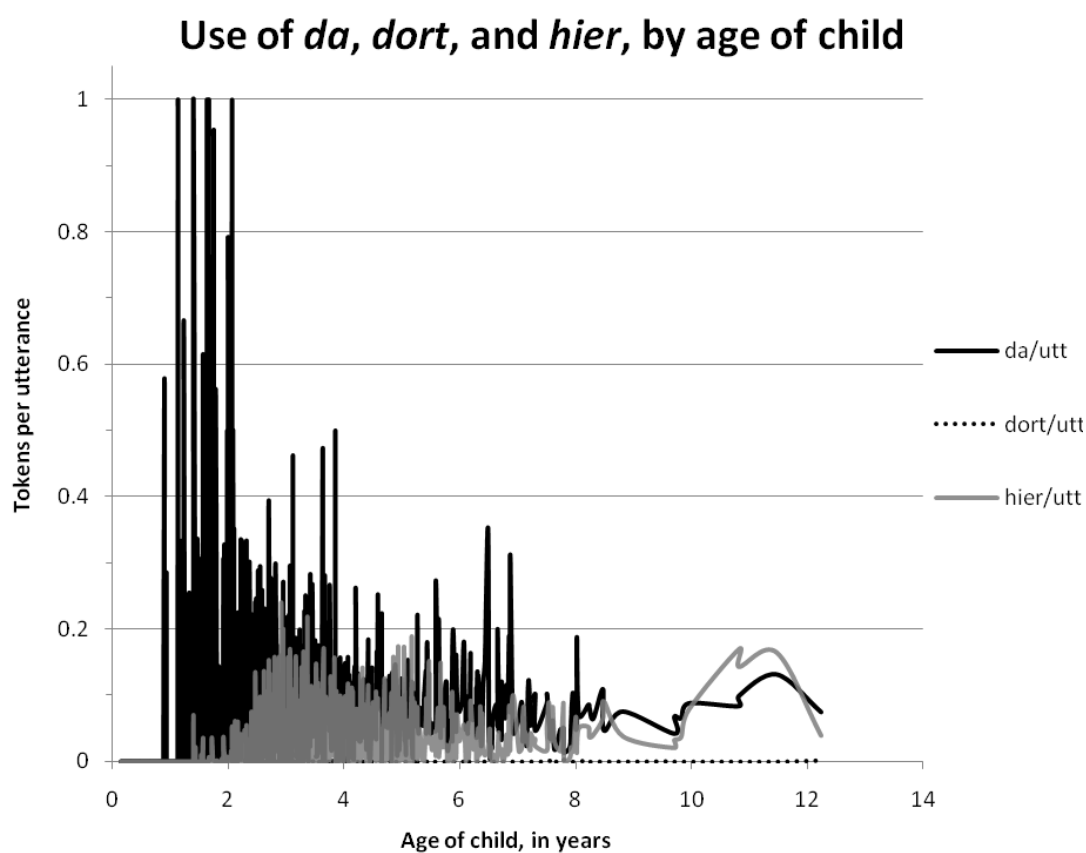
Research studies dealing with L1 acquisition of spatial expressions are limited, and a search of the literature has revealed none relating to German. Existing L1 corpora provide the means to be able to utilize empirical evidence as a comparative and analytic tool. The CHILDES database (Child Language Data Exchange System) contains seven German language corpora involving a total of 83 children (see Table 41). Since these corpora are transcribed and extensively coded, it is possible to extract datasets from the corpora using the project's CLAN software. Such analyses enable the examination of specific word forms and co-occurrences as well as child characteristics. Determining the number of utterances of each of *hier*, *dort*, and *da* by child age allows an examination of the claim that *da* is among the words used first by children. The child learner corpus data can also be compared with that from the various non-learner corpora utilized in this study.

Corpus analysis

Prior research has shown *da* to be among the first words acquired by L1 learners (Weissenborn 1985). Examinations of the CHILDES corpora indicate that *da* does indeed occur with regularity, and from an early age. Figure 36 presents a chart that measures the frequency of the use of the three adverbs as defined by the number of times they occur on average over all the given utterances as transcribed; these usage frequencies are graphed according to the age of the child. The use of *da* is the most frequent of the three adverbs, especially at earlier years, thus lending support to previous findings that *da* is among the first words L1 German children use. What is more surprising is the paucity of utterances of *dort*—barely visible on the chart because the

Table 41 Specific CHILDES corpora examined

Corpus	Number of children	Children's ages	Reference
Caroline	1	0;10 – 4;3	(von Stutterheim 1988)
Miller	3	0;10-4;0	(Miller 1979; Miller & Weissenborn 1977)
Rigol	4	0-7	(Rigol & Behrens 2003)
Szagun	48	1;6-3	(Szagun 2001)
Wagner	13	1;5–14	(Wagner 1985)
Weissenborn	14	7–11	(Weissenborn 1985; 1986)

Figure 36 Use of *da*, *dort*, and *hier* by age of child

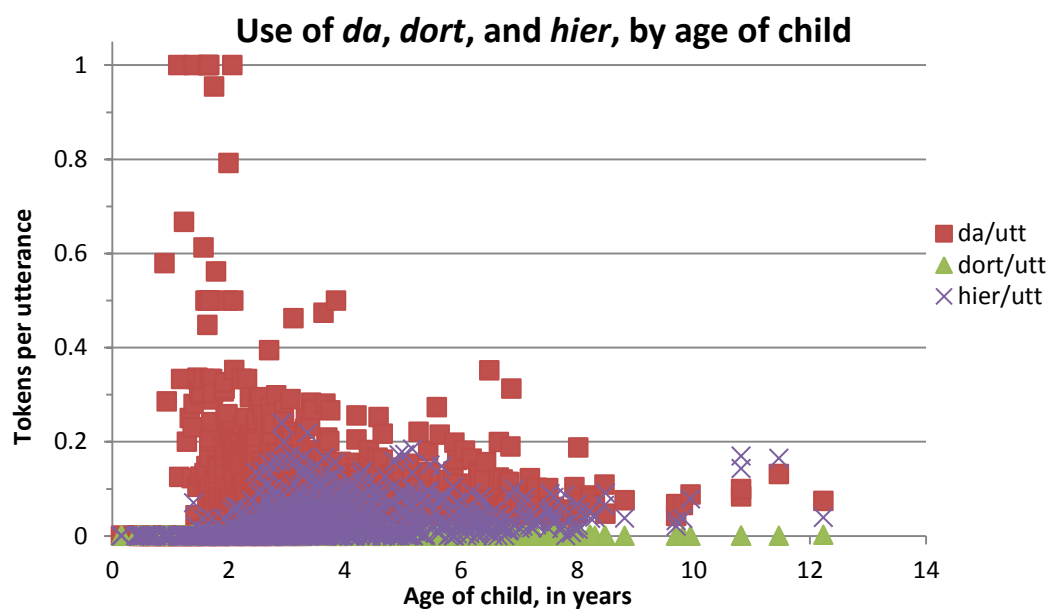


Figure 37 Scatterplot of the use of *da*, *dort*, and *hier* by age of child

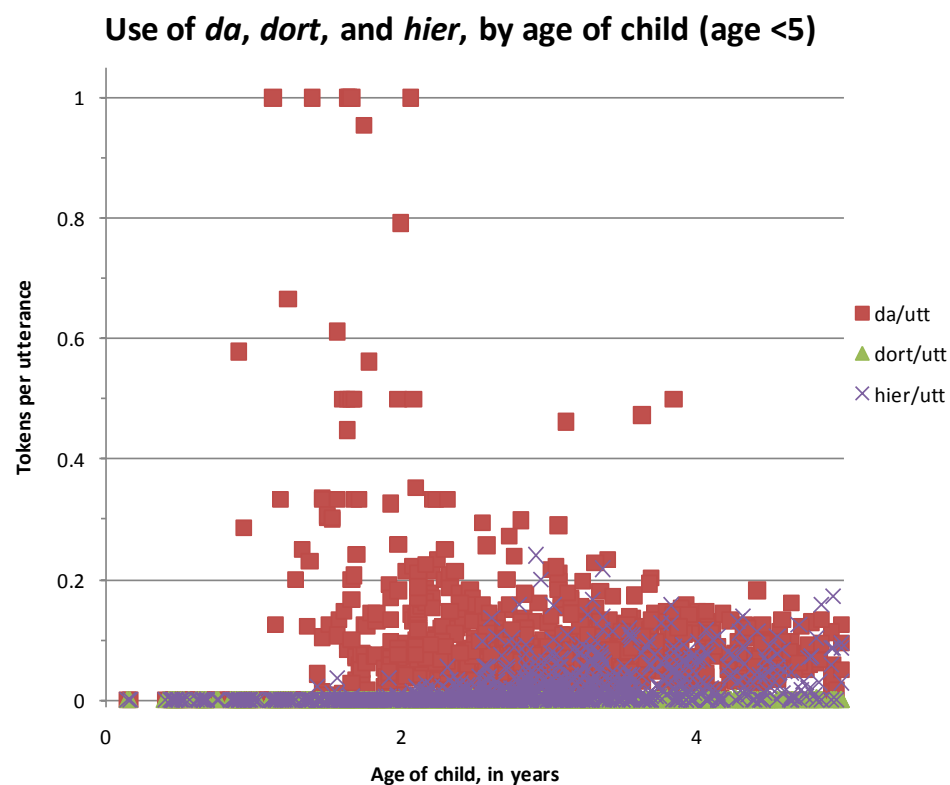


Figure 38 Scatterplot of the use of *da*, *dort*, and *hier* by age (age <5)

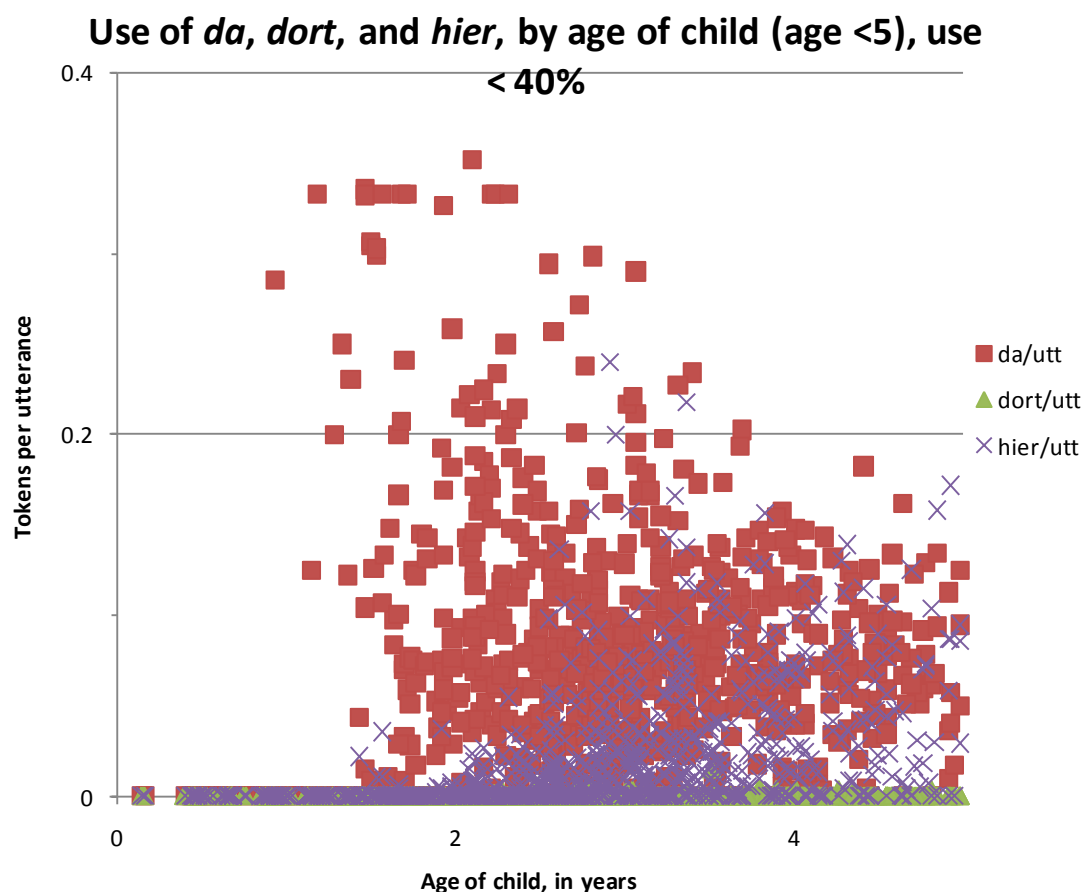


Figure 39 Scatterplot of the use of *da*, *dort*, and *hier*, age <5, close-in view

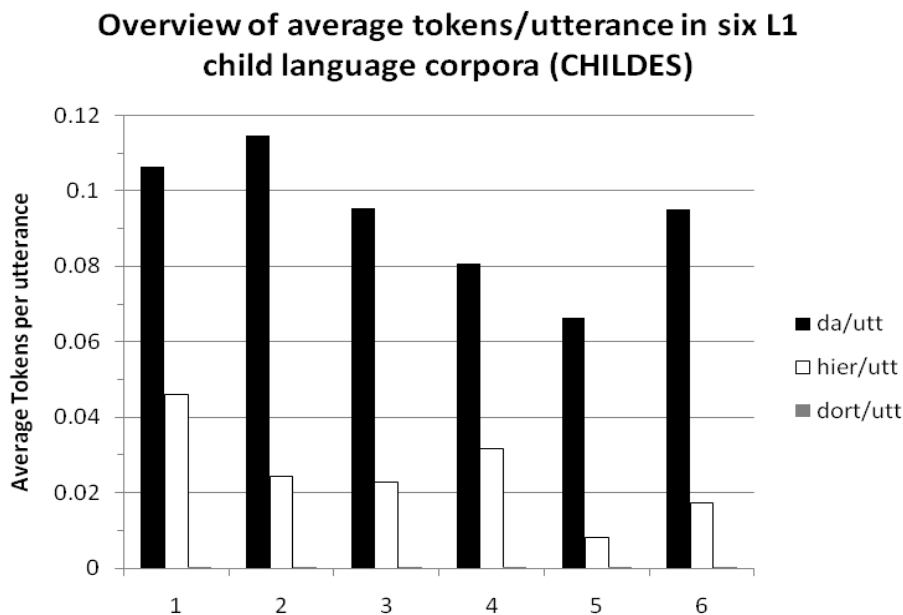


Figure 40 Use of *hier*, *da*, and *dort* by child L1 learners

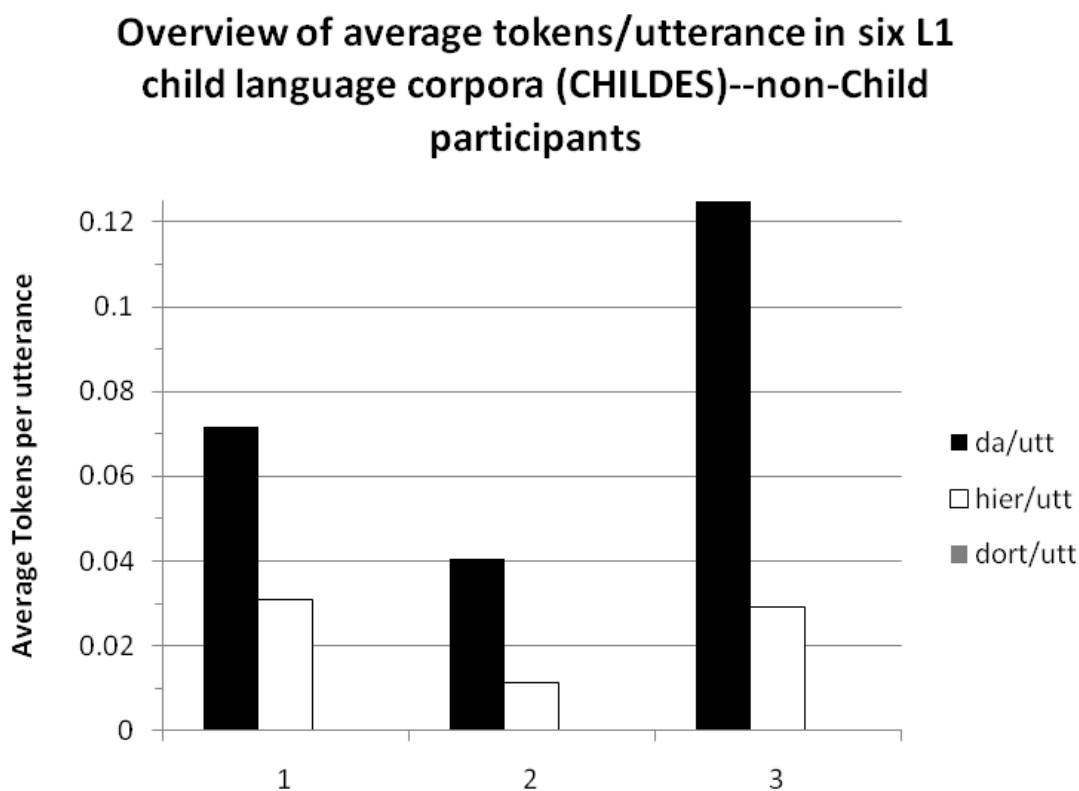


Figure 41 Use of *hier*, *da*, and *dort* by adult participants in child interaction

Table 42 Transcript co-occurrences, children <5;0

<i>da</i>	<i>Dort</i>	<i>hier</i>	# of transcripts (%)	# of utterances in transcripts (%)
-	-	-	156 (15.7)	2997 (0.8)
-	-	+	4 (.4)	209 (0.1)
-	+	-	0 (0)	0 (0)
-	+	+	0 (0)	0 (0)
+	-	-	201 (20.3)	32704 (9.2)
+	+	-	0 (0)	0 (0)
+	-	+	557 (56.1)	282560 (79.1)
+	+	+	16 (1.6)	5765 (1.6)

Table 43 Transcript co-occurrences, adults

<i>da</i>	<i>Dort</i>	<i>hier</i>	# of transcripts (%)	# of utterances in transcripts (%)
-	-	-	76 (10.5)	846 (0.2)
-	-	+	7 (1.0)	119 (<0.1)
-	+	-	0 (0)	0 (0)
-	+	+	0 (0)	0 (0)
+	-	-	83 (11.5)	6126 (1.7)
+	+	-	0 (0)	0 (0)
+	-	+	548 (75.8)	207920 (58.2)
+	+	+	9 (1.2)	4968 (1.4)

uses are so relatively uncommon. When examining the data from these CHILDES corpora, it is important to note that while the overall age range in the corpora is rather large (through age 11), most of the transcribed situations are with children 0-3 years old. The older ages will not be considered in the bulk of this analysis due to their limited representation in multiple corpora, transcripts, and different children. Furthermore, at the older ages, distinctions between acquisition and adult-like use are blurred. In this chapter, the focus is on child L1 acquisition, so the 992 transcripts with children younger than 5, which contain a total of 357,225 utterances, serve as the basis for the data under discussion here. The number of utterances in transcripts provides an upper bound to the percent of utterances containing a given pattern; it helps adjust for transcripts that are much larger or smaller than the median.

While the use of *hier* is less than that of *dort*, this stark contrast with respect to *dort* seems to provide evidence that the reference to something not co-located with the speaker/hearer is not accomplished for most of these children through *dort*, but, rather, through *da*. *Da* may not always mean *dort*, but the children do refer to things for which *dort* or a *dort*-functioning-equivalent are needed, and some of the use of *da* seems to be in this replacement category. Figure 37 is scatterplot showing each individual point. While the *da*/*dort*/*hier* utterance frequency is clustered and overlapping in the lower frequency area (under 20%), looking at the outliers is helpful, as it shows some of the early-on high frequency use of *da*, as supported in the literature. Some of this use may be phonetically driven and devoid of semantic meaning. Even if that were the case, however, the high frequency of the word form could have an influence on later preference for *da* (over, e.g., *dort*). Figure 38 isolates the children who are under 5 in order to show these contrasts more clearly. One of the children stood out for her usage pattern. Caroline (2;3-2;4) uttered *hier* without uttering either *da* or *dort*, saying *hier* six times in four utterances without using either *da* or *dort*. She did, however, use *da* in general with greater frequency than *hier*, both before and after these instances of only using *hier*.

Zooming in to examine the most pertinent data, Figure 39 shows tokens per utterance of up to .4 tokens per utterance. Here it becomes clearer that while *da* is overwhelmingly most frequent, *hier* shows up starting at around 2 years of age as noticeably present. One explanation for a later native speaker use of *da* as the *there*-like contrastive member paired with *hier* is this acquisitional pattern. The use of *dort* never gets substantially above the X axis. Its occurrence is rare. In Table 42, the severe restrictions on the use of *dort* are presented. This adverb does not occur by itself: it is only used when both *da* and *hier* are present. Similarly, *hier*, though it can be used alone, is never seen to occur with *dort* but without *da*. When only one adverb appears, the choice is most often for *da*. *Hier* does appear by itself, but relatively rarely; more frequent is *hier* occurring with *da* but without *dort*. This usage represents the most frequent co-occurrence pattern by far. (Some of these may be separated in the transcript, but even without that separation, this pattern is most frequent.)

Some of the child corpora contain transcripts of adult participants, most often parents, who are interacting with the children. A total of 723 adult transcripts containing 219,979 utterances in total were analyzed in the same manner as were the child transcripts. Figure 41 shows the use of the three adverbs by the adult participants, where available. Interestingly, the pattern here is very similar to the pattern with the child learners: the adult data, shown in more detail in Table 43, exhibit a high degree of similarity with the child data. Some of this similarity may come from the repetition that is common between children and adults (in both directions); additionally, parents and other adults who interact with small children often modify their speech for such interactions. Nonetheless, the similarity is striking and raises interpretive questions: what is the nature of the relationship shown here between child and adult language use? First of all, it suggests that child usage is not completely disjoint from adult usage. One might expect, therefore, that child L1 acquirers are making some of the same semantic choices that adult L1 speakers are. Secondly, it adds additional evidence to the native speaker

data that *da* is often used as an alternative for *dort* much more frequently than it serves as a replacement for *hier*.

The high frequency of *da* contrasts with the highly restricted use of *dort*. The children seem to use *da* as the default choice for referring to one non-speaker location. When referring to two non-speaker locations, *da* can be used multiple times or *dort* can be added in, but that appears to be the only time when *dort* is used by these children. Therefore, it cannot be said that *da* lacks semantic/spatial meaning. At least some of the time, *da* is carrying the meaning of ‘non-speaker location’. Given these tendencies, it might be fair to ask if it indeed ever is fully devoid of locative information, as *da* is the default choice for non-speaker contrastive locations, often as a replacement for *dort*. As seen with the adult L1 speaker data, the choice of *da* more frequently than *dort* suggests that *da* can serve as a contrastive element to *hier*, thus weakening any claims of true neutrality.

What the data do not show is the cause of this use pattern. Is it simply that child L1 learner usage patterns carry through into adult usage? Or is it more the result of the possibility that children are modeling their speech after that of their adult caregivers? Child L1 usage of the spatial adverbs under investigation here—at a minimum—reflects that of adult L1 speakers. Whether it lays the groundwork for those adult usage patterns cannot be determined from this data.

CHAPTER 7 CONCLUSION

Having a three-member system of spatial demonstrative adverbs introduces complexities and results in a non-trivial choice of adverb. There do, however, appear to be systematic tendencies in how *hier*, *da*, and *dort* are used and interpreted. The evidence from learner data, native speaker interpretations and grammaticality judgments, adult use corpora, and L1 child corpora all point to *da* as playing a more significant role than *dort* in the three-way spatial adverb system of German. The frequency of *da* in child L1 learner speech cannot simply be explained by phonetic production. The child L1 corpora showed *dort* only chosen when *da* and *hier* were already present (three or more locations were referenced). Native speakers and L2 learners also use *da* to refer to some non-abstract physical locations. Since *da* can indicate a location equal to that of speaker, context often provides semantic information. Even if used in a semi-neutral manner, the use suggests the possibility of a *dort*-type non-speaker location or of an abstract location/third location.

It seems to be the case that although it could be said that *da* has *dort*-replacement tendencies, the data suggest that the better phrasing might instead be that *dort* has *da*-replacement abilities. In addition to the empirical evidence presented here, further evidence that *da* —and not *dort*—serves as the primary contrastive adverb to *hier* can be found in the lexicon. There are a number of German adverbial compounds such as those with *durch* ‘through’ that show flexibility when formed with *hier* and *da*:

(70) *hierdurch* (“1. räumlich: through here, this way” (Langenscheidt-Redaktion 2004))

(71) *hier hindurch* (e.g., “*wir müssen h. gehen*” ‘we need to go in here’ (Osterwinter et al. 2006))

- (72) *dadurch* (“1. räumlich: through (it, there etc.); that way; *muss ich wirklich dadurch?* ‘do I really have to go through there?’ ” (Langenscheidt-Redaktion 2004))
- (73) *da hindurch*, (“durch diese Stelle, Öffnung hindurch: es gibt nur eine Tür, d. muss jeder gehen, der den Raum betritt. ” “through this place, opening: there is only one door, through [it] everyone who enters the room must go’ (Osterwinter et al. 2006))

These are all valid compounds, but a compound with *dort*, **dortdurch* is not possible (the lack of such a form was confirmed not only by a lack of a dictionary entry, but also by no results for a search of the DWDS corpus).

The analysis of the semantic-pragmatic meaning of *hier*, *da*, and *dort* and the acquisition of that system by L2 learners presents a number of analytic challenges. Deictically, there is evidence for the acquisition of *hier* among L2 learners of German, while the situation with *dort* and *da* is less clear. L2 learners seem to have relatively little difficulty assigning autodeictic grammaticality judgments when *hier* is used strictly deictically. With *dort*, L2 learners are less consistent in their ability to assign judgments based upon a necessarily heterodeictic situation. Furthermore, while deictic *da* does seem to be accessible at least on some level to learners, the learner groups accepted sentences with purely deictic uses of *da* at a lower rate than did the native speakers. The native speaker data concerning the deictic use of *da* confirm theories asserting the broad applicability of *da* and indicate that *da* can be used either autodeictically or heterodeictally; *da* may correspond to either English *here* or *there*, or it may be used in cases where neither would be appropriate in English.

Research Question 1 asks, “How do native speakers use *hier*, *da*, and *dort* to refer to locations?” The native speaker survey data, corpus analysis, and child L1 acquisition data present insight into this broad question. *Dort* occurs with lower frequency than *da* in the corpus data, suggesting that *da* may function as a stand-in for *dort*: in spoken language, *da* occurs with four times the frequency of *dort*. The L1 child corpora also

show a strong preference for *da* rather than *dort*. Not all of this usage gap can be explained by the possibility of using *da* to indicate an uncertain location. The pair *hier* and *da* frequently occur together. In the survey data, native speakers do not treat *da* as a superfluous double to either *dort* or *hier*: it is neither always accepted at or near 100% of the time, nor does it consistently show a parallel acceptance rate with either *hier* or *dort*.

Research Question 2, “How do adult native speakers interpret the use of *hier*, *da*, and *dort* as conveying specific or ambiguous location information?”, concerns itself with how spatial adverb use is interpreted and how meanings are assigned. While a strictly anaphoric, non-deictic interpretation of *da* appears to be possible, it does not appear to be the default interpretation of anaphoric uses of *da*, as evidenced by data from each of the three groups in Task 2. Indeed, different native speakers were shown to assign both consistently neutral or consistently (hetero)deictic interpretations (though autodeictic *hier* replacement use was near zero for the NS group). Despite the indication that anaphoric *da* is not simply a neutral non-deictic phenomenon, differences were observed between the native speaker and learner groups. Anaphoric *da* is broad in the sense that it may provide deictic information about the location of the speaker or may be truly unspecified and uninfluenced by speaker location. The result that not all native speakers assign a non-deictic interpretation to *da*, treating it instead like *dort*, calls into question some of the theoretical descriptions of the flexibility of *da*. Native speakers express little uncertainty in their interpretation choices, instead assigning *da* with meanings not dissimilar to those assigned to *dort*. *Da* does not show the ambiguity that is predicted in the literature.

The issue of regional variation in the use of spatial adverbs is contemplated in Research Question 3, which asks, “Is there regional variation in how native speakers use and interpret *hier*, *da*, and *dort*?” Despite the shortcomings of the data in this study with respect to a balanced regional distribution, the data support previous dialectal research that suggests that regional variation may play a role in this system. Specifically, there is

a tendency for southern German speakers to use *da* in a flexible role where *hier* might be preferred by northern speakers: southern speakers appear to have a greater tendency to use *da* to refer to a speaker location. No such regional contrast is seen with the pair *da/dort*.

The non-native speaker survey data addresses Research Question 4, “How do non-native speakers interpret and judge the use of *hier*, *da*, and *dort*? Do they exhibit any acceptance or interpretation patterns? At what level, if any, do they exhibit native-like performance?” Given the observed native speaker inconsistency, it is difficult to assess what the L2 learners are acquiring with respect to the use of the German three-way spatial demonstrative adverb system. The lack of explicit instruction in their selection would suggest that input, L1 transfer, or some other factors are responsible for the acquisition of the interpretations of the adverbs *hier*, *dort*, and *da*. The greatest variation from native speakers is seen with *da*, while the least variation is seen with *hier*. Higher proficiency leads to more native-like performance, although overall non-native speakers appear more likely to accept *hier* and less likely to accept *da* than native speakers. None of the L2 groups investigated here showed a significant difference in the acceptance of *dort* when compared with native speaker acceptance levels. For the L2 groups, *da* is not simply equated with *dort*. The most proficient group—the highly-proficient NNS group of those with at least 10 years of experience with German—was the only L2 group not to show a significant difference in at least half of the *da* acceptance items. The consistently strong performance of the learners with respect to *hier* is understandable given the lexical parallels between the meaning and use of *hier* and *here*, and learner comprehension is likely aided by their status as clear English-German cognate pairs. One might expect to see a similar parallel to exist with respect to *dort* and *there*, although the less transparent cognate relationship may explain some of the differences in performance. Further investigation into the relationship between speaker location and anaphoric demonstrative selection and interpretation—including the consideration of possible other relationships

or explanations for the distribution that was observed—is a necessary prerequisite to being able to truly assess the ability for L2 learners of German to acquire the pragmatics of the three way *hier*, *dort*, and *da* system in German. At least some aspects of the system, however, do seem to be acquired relatively early in the acquisition process; since *da* enters L1 vocabulary at an early stage, there may be evidence for acquisitional similarities between L1 and L2 learners of German. A further analysis of L1 child use of *da*—and not merely spoken production of it—would help to confirm or deny such an argument.

Six CHILDES L1 learner corpora were used to address Research Question 5, “Do child L1 learners of German exhibit the same or different usage patterns as adult native speakers? Are there any acquisitional patterns or orders that are observable?” The corpora confirm that the acquisition of *da* occurs early in child language and further show that *da* is used with much greater frequency than *dort*, which is almost absent from the corpora. *Da* is often used instead of *dort* to refer to locations other than that of the speaker, and *dort* does not occur by itself, but rather only when both *da* and *hier* are present. For the child L1 learners, *da* is the default choice for identifying non-speaker locations, a result that is consistent with—if not stronger than—the analysis of data from adult native speakers.

The various elements of the study together inform an answer to Research Question 6, “How do the results of the three main data sources fit together to inform an analysis of the use and interpretation of *hier*, *da*, and *dort* in modern German?” There is a three-member system of primary spatial adverbs in German, and while a simple analysis is not possible, some tendencies can be observed. Context can help disambiguate, and *da* may at times be semi-neutral, but it is not completely neutral. The basic structure appears to be a contrast between *hier* and *da*: *dort* may at times replace *da* and *da* may at times be used to replace *hier*, but the default contrastive relationship is expressed through *hier* and *da*. The possibility of flexibility in use or interpretation of *da*

does not undercut its primary role as identifying locations other than the speaker's own location. The use of *hier*, on the other hand, is highly restricted. The possibility of *dort* enables a third location to be identified with a distinct adverb or a second location to be indicated in those cases where *da* is being used to refer to the speaker's location.

The study data and the corpus analysis provide some insight into the distribution of the three adverbs and the assignment of their meaning, but a larger study incorporating more native speaker selections is required in order to be more informative as to the semantic-pragmatic restrictions and tendencies present in the demonstrative adverb system in German. However, the data provide strong evidence for a re-examination of the treatment of *da* as having a completely non-deictic interpretation when used as an anaphor. Although at times *da* may be used in a location neutral manner, this does not appear to always be the case. In answer to the question proposed by Lenz, "Where is *da*?", *da* seems most often—at least for many speakers—to be where *dort* is, only rarely where *hier* is, and sometimes where either is. There is evidence for a semantic association between *da* and *dort*; and *da* is an acceptable substitution for *dort* in most cases; at many times where two or fewer locations are referenced, it may be used in place of *dort*. Indeed, given the higher frequency of the use of *da* than of *dort*, it may be more accurate to argue that it is *dort* that is often where *da* is. Evidence from multiple sources points to the default *hier* counterpart, *there*-like equivalent being *da*. The flexibility that *da* has in being used in non-contrastive locations or idiomatic expressions to refer to the location of the speaker does not discount the role *da* has as a primary means of differentiating spatially from *hier*. There is evidence that native speaker grammaticality judgments show regional variation when *da* is used to indicate a speaker location, with northern speakers tending to prefer *hier* and southern speakers tending to prefer *da*. Further investigation into when *dort* is chosen over *da* could reveal further information about this semantic relationship. Further study using sentences more like those found in

the *Atlas zur deutschen Alltagssprache* could similarly address the presence of regional variation in a more thorough manner.

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APPENDIX A PILOT TASK 1

presented here with translations and marked distracters

In the first section, you will be presented with a number of short scenarios. Following each scenario are four statements in German. For each statement, decide whether that statement is possible or not possible given the context of the situation.

1. *A magazine salesman knocks on the front door of a home. A child answers the door. The salesman asks, Is your dad X*

a. Ist der Papa da?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
b. Ist der Papa zu Hause?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible (<i>distracter</i>)
c. Ist der Papa hier?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
d. Ist der Papa dort?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible

2. *A father arrives at home. He sees his daughter in the kitchen, greets her, and asks, Is Mom X?*

a. Ist die Mama zu Hause?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible (<i>distracter</i>)
b. Ist die Mama hier?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
c. Ist die Mama dort?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
d. Ist die Mama da?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible

3. *Two colleagues are chatting in the copy room at work. One of them wants to know if their boss, Martina, is in the office. He asks, Is Martina X?*

a. Ist Martina hier?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
b. Ist Martina dort?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
c. Ist Martina da?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
d. Ist Martina krank?	<input type="checkbox"/> possible	<input type="checkbox"/> not possible

4. *sloppy identity item was excluded from analysis with the test of Test 1*
Paul likes to watch TV in bed. His friend Peter prefers to read in bed. Frank, a mutual friend, is describing these habits to someone else and says,

a. Peter liest im Bett und Paul sieht da fern.	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
<i>Paul reads in bed and Paul</i>		
b. Peter liest im Bett und Paul sieht dort fern.	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
<i>watches television X.</i>		
c. Peter liest im Bett und Paul sieht hier fern.	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
d. Peter sieht im Bett fern und Paul liest dort.	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
<i>(distracter—false)</i>		

5. *Marianne and Johannes are looking for a new home. Having an office in her home is important to Marianne, and she tells her real estate agent that she needs such a room so that she can write, saying, X I want to write.*

a. Da will ich schreiben.	<input type="checkbox"/> possible	<input type="checkbox"/> not possible
b. Hier will ich schreiben.	<input type="checkbox"/> possible	<input type="checkbox"/> not possible

- | | | |
|-----------------------------|-----------------------------------|---|
| c. Dort will ich schreiben. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible |
| d. Ich muss schreiben. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible (<i>distracter</i>) |

6. *A real estate agent is showing a home to Marianne and Johannes. Johannes is standing in the home's kitchen, admiring it, and calls out to his wife, I could cook well X.*

- | | | |
|----------------------------------|-----------------------------------|---|
| a. Ich könnte dort toll kochen. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible |
| b. Ich könnte hier toll kochen. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible |
| c. Ich könnte jetzt toll kochen. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible (<i>distracter</i>) |
| d. Ich könnte da toll kochen. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible |

7. *Marianne and Johannes liked the house they saw and want to live there. The next day at work, Marianne tells a colleague about it, saying,*

- | | | |
|-----------------------------|-----------------------------------|---|
| a. Wir wollen da wohnen. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible |
| <i>We want to live X.</i> | | |
| b. Wir wollen jetzt wohnen. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible (<i>distracter</i>) |
| c. Wir wollen hier wohnen. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible |
| d. Wir wollen dort wohnen. | <input type="checkbox"/> possible | <input type="checkbox"/> not possible |

APPENDIX B PILOT TASK 2

presented here with English translations

In the next section, you will be presented with brief statements in German and will then be asked a brief question about its meaning. Please SELECT ONE ANSWER for each question

8. Martina says, „Ich bin in Freiburg geboren, und ich bin da auch aufgewachsen.“
Where is Martina right now?
☐ Freiburg ☐ somewhere else ☐ impossible to tell
 Martina says, "I was born in Freiburg, and I grew up *da*."
9. Tobias says, „Ich bin 2004 nach Iowa City umgezogen, und dort will ich bleiben.“
Where is Tobias right now?
☐ Iowa City ☐ somewhere else ☐ impossible to tell
 Tobias says, "I moved to Iowa City in 2004, and I want to stay *dort*."
10. Thomas says, „Ich bin in Berlin geboren, und ich bin hier auch aufgewachsen.“
Where is Thomas right now?
☐ Berlin ☐ somewhere else ☐ impossible to tell
 Thomas says, "I was born in Berlin, and I also grew up *hier*."
11. Claudia says, „Ich bin vor zwei Jahren nach Hannover umgezogen, und hier will ich bleiben.“
Where is Claudia right now?
☐ Hannover ☐ somewhere else ☐ impossible to tell
 Claudia says, "I moved to Hannover two years ago, and I want to stay *hier*."
12. Sabine says, „Ich bin letztes Jahr nach Dortmund umgezogen, und da will ich bleiben.“
Where is Sabine right now?
☐ Dortmund ☐ somewhere else ☐ impossible to tell
 Sabine says, "I moved to Dortmund last year, and I want to stay *there*."
13. Monika says, „Ich bin in London geboren, und ich bin dort auch aufgewachsen.“
Where is Monika right now?
☐ Iowa City ☐ somewhere else ☐ impossible to tell
 Monika says, "I was born in London, and I also grew up *dort*."
14. Lukas says, „Paris ist eine sehr schöne Stadt; ich habe zwanzig Jahre dort gelebt.“
Where is Lukas right now?
☐ Paris ☐ somewhere else ☐ impossible to tell
 Lukas says, "Paris is a very nice city; I lived *dort* for twenty years."
15. Stefan says, „Die Unibibliothek ist sehr schön; da kann ich immer gute Bücher finden.“
Where is Stefan right now?
☐ the university library (Unibibliothek) ☐ somewhere else ☐ impossible to tell
 Stefan says, "The university library is very nice; I can always find good books *da*."
16. Julia says to a friend, „Das Restaurant Brühl ist ausgezeichnet. Warst du schon einmal hier?“

Where is Julia right now?

☐ the restaurant (Das Restaurant Brühl) ☐ somewhere else ☐ impossible to tell

Julia says to a friend, "The Restaurant Brühl is excellent. Have you already been *hier*?"

17. Anna says, „Ich bin in Frankfurt geboren, und ich bin dort auch aufgewachsen.“

Where is Anna right now?

☐ Frankfurt ☐ somewhere else ☐ impossible to tell

Anna says, "I was born in Frankfurt, and I also grew up *dort*."

18. Daniel says, „Die Neue Pinakothek hat immer fantastische Ausstellungen; ich kann hier einen ganzen Tag verbringen.“ *Where is Daniel right now?*

☐ die neue Pinakothek (art museum) ☐ somewhere else ☐ impossible to tell

Daniel says, "The Neue Pinakothek [art museum] always has fantastic exhibitions; I can spend an entire day *hier*."

19. Katharina says to a friend, „Deine Wohnung ist sehr schön. Seit wann wohnst du da?“

Where is Katharina right now?

☐ her friend's apartment ☐ somewhere else ☐ impossible to tell

Katharina says to a friend, "Your apartment is very nice. How long [since when] have you lived here?"

APPENDIX C DWDS CORPUS DESCRIPTIONS

Table C1 DWDS corpus descriptions

	Number of words	Time period	Number of works	Contents
Juilland-D	500,000	1920-1939	398	<i>Distribution by number of words:</i> Drama: 20% Novels, short stories: 20% Essays: 20% Journalism: 20% Scientific writing: 20%
DWDS Core Corpus (Kerncorpus)	122,816,010 (2,224,542 distinct words)	1900-2000	79,830	<i>Distribution by number of words:</i> Fiction: 26% Technical writing: 22% Scientific writing: 24% Newspapers: 28% <i>Distribution by number of texts:</i> Literature: 26% Journalism: 27% Technical writing: 20% Spoken transcriptions: 5%
Spoken (gesprochene Sprache)	2,500,000	1900-2000	756 speakers (multiple texts per speaker)	<i>Distribution by number of words (approximate):</i> Speeches (1947-1961): 8% Radio speeches (1929-1944): 16% Austrian parliament minutes (1948-1956): 8% TV literary interviews (1988-2001): 18% Interviews with German immigrants in Israel (1989-1994): 12% Bundestag minutes (1998-1999): 12% Austrian parliament minutes (1948-1956): 8%
DDR corpus	9,000,000	1949-1990	1150	Currently, public documents
<i>Die Zeit</i> corpus	106,000,000	1946-2008	493,380	A single German-language newspaper

APPENDIX D ACCEPTABILITY JUDGMENT (TASK 1) ITEM ANALYSIS

Table D1 Acceptability judgment task (task 1) item analysis

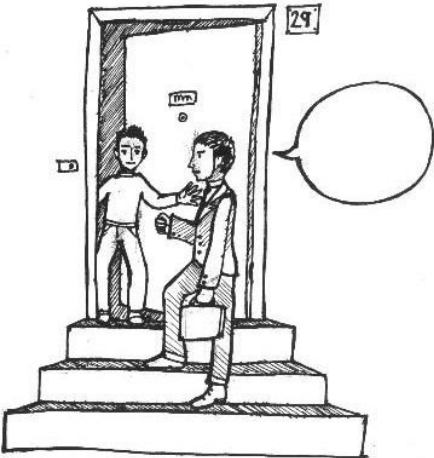
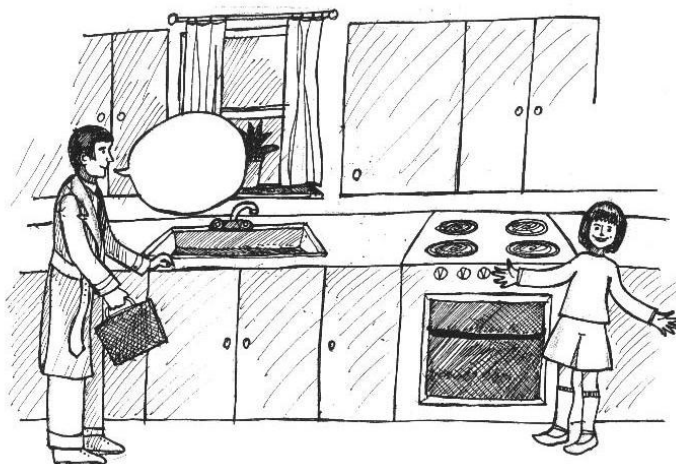
Item 10	A magazine salesman knocks on the front door of a home. A child answers the door. The salesman asks, Ist der Papa X? ('Is your dad X')?		
Picture			
	Acceptance, in percent		
	<i>hier</i>	<i>dort</i>	<i>da</i>
First-Year Learners (N=28)	96	25	29
Second-Year Learners (N=19)	95	16	47
Upper-level Learners (N=36)	63	9	69
High Proficiency NNS (N=25)	52	4	80
German NS (N=107)	39	2	97

Table D1 Continued

Item 11

A father arrives at home. He sees his daughter in the kitchen, greets her, and asks
Ist die Mama X? ('Is Mom X?')

Picture



Acceptance, in percent

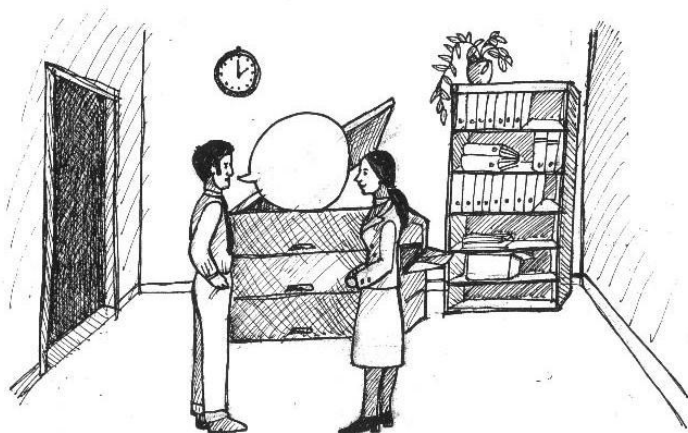
	<i>hier</i>	<i>dort</i>	<i>da</i>
First-Year Learners (N=28)	96	25	19
Second-Year Learners (N=19)	94	6	32
Upper-level Learners (N=36)	88	9	46
High Proficiency NNS (N=25)	92	4	76
German NS (N=107)	84	1	95

Table D1 Continued

Item 12

Two colleagues are chatting in the copy room at work. One of them wants to know if their boss, Martina, is in the office. He asks, *Ist Martina X?* (Is Martina X?)

Picture



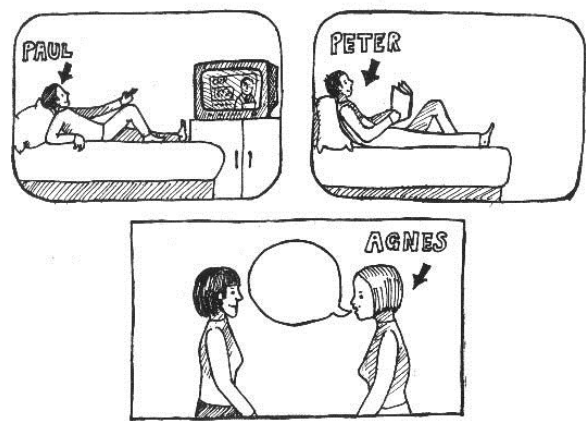
Acceptance, in percent

	<i>hier</i>	<i>dort</i>	<i>da</i>
First-Year Learners (N=28)	93	43	29
Second-Year Learners (N=19)	90	17	42
Upper-level Learners (N=36)	89	26	57
High Proficiency NNS (N=25)	84	4	72
German NS (N=107)	88	1	95

Table D1 Continued

Item 13 Paul likes to watch TV in bed. His brother Peter prefers to read in bed. Agnes, Pauls wife, is describing these habits to a friend and says, Peter liest im Bett und Paul sieht *X* fern. (Paul reads in bed and Paul watches television *X*.)

Picture



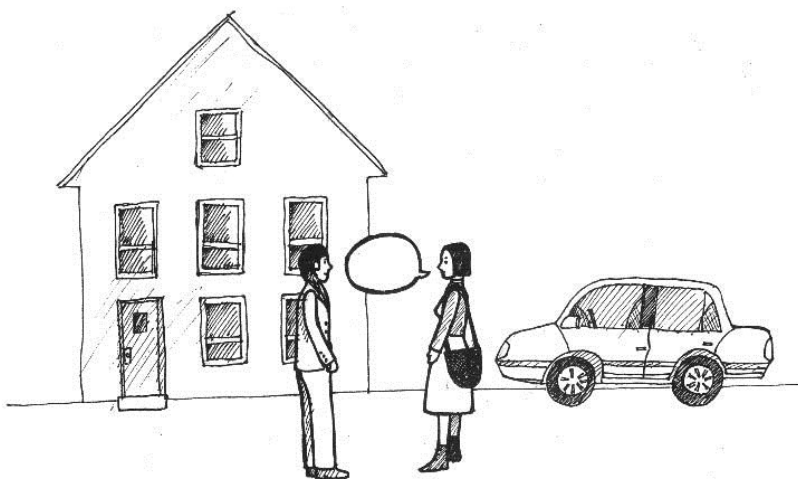
	Acceptance, in percent		
	<i>hier</i>	<i>dort</i>	<i>da</i>
First-Year Learners (N=28)	41	52	81
Second-Year Learners (N=19)	11	89	68
Upper-level Learners (N=36)	12	83	71
High Proficiency NNS (N=25)	12	88	72
German NS (N=107)	12	88	69

Table D1 Continued

Item 14

Marianne and Johannes are looking for a new home. Having an office in her home is important to Marianne, and she tells her real estate agent that she needs such a room so that she can write, saying, *X* will ich schreiben. (*X* I want to write.)

Picture



Acceptance, in percent

	<i>hier</i>	<i>dort</i>	<i>da</i>
First-Year Learners (N=28)	62	48	52
Second-Year Learners (N=19)	26	95	84
Upper-level Learners (N=36)	34	89	55
High Proficiency NNS (N=25)	17	92	67
German NS (N=107)	28	89	88

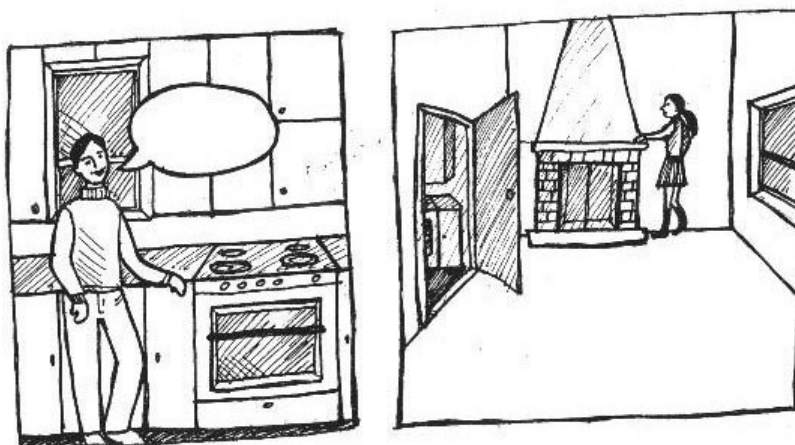
Table D1 Continued

Item 15

A real estate agent is showing a home to Marianne and Johannes. Johannes is standing in the home's kitchen, admiring it, and calls out to his wife,

Ich könnte *X* toll kochen. (I could cook well *X*.)

Picture



Acceptance, in percent

	<i>hier</i>	<i>dort</i>	<i>da</i>
First-Year Learners (N=28)	85	27	32
Second-Year Learners (N=19)	100	11	11
Upper-level Learners (N=36)	97	14	14
High Proficiency NNS (N=25)	100	8	24
German NS (N=107)	100	20	48

APPENDIX E LOCATION ASSIGNMENT (TASK 2) ITEM ANALYSIS

Table E1 Location assignment task (Task 2) item analysis

Item 17	<p>Martina says, <i>Martina sagt</i>, „Ich bin in Freiburg geboren, und ich bin da auch aufgewachsen.“ <i>I was born in Freiburg, and I also grew up ‘da’.</i> Where is Martina right now? Wo befindet sich Martina jetzt? Choice of location, in percent</p>			
	Freiburg	somewhere else	either of these	I’m uncertain
First-Year Learners (N=28)	41	32	14	14
Second-Year Learners (N=19)	20	60	20	0
Upper-level Learners (N=36)	3	45	42	9
High Proficiency NNS (N=25)	8	44	44	4
German NS (N=107)	1	66	30	3

Item 18	<p>Tobias says, <i>Tobias sagt</i> „Ich bin 2004 nach Iowa City umgezogen, und dort will ich bleiben.“ <i>I moved to Iowa City in 2004, and ‘DORT’ I want to stay.</i> Where is Tobias right now? Wo befindet sich Tobias jetzt? Choice of location, in percent</p>			
	Iowa City	somewhere else	either of these	I’m uncertain
First-Year Learners (N=28)	41	55	0	5
Second-Year Learners (N=19)	70	20	0	10
Upper-level Learners (N=36)	31	53	13	3
High Proficiency NNS (N=25)	16	72	8	4
German NS (N=107)	24	58	17	1

Table E1 continued

Item 19	<p>Thomas says, <i>Thomas sagt</i> „Ich bin in Berlin geboren, und ich bin hier auch aufgewachsen.“ <i>I was born in Berlin, and I also grew up</i> ‘HIER’.</p> <p>Where is Thomas right now? Wo befindet sich Thomas jetzt?</p> <p>Choice of location, in percent</p>			
	Berlin	somewhere else	either of these	I’m uncertain
First-Year Learners (N=28)	73	14	5	9
Second-Year Learners (N=19)	80	10	10	0
Upper-level Learners (N=36)	88	0	12	0
High Proficiency NNS (N=25)	92	0	4	4
German NS (N=107)	93	2	4	1

Item 20	<p>Claudia says, <i>Claudia sagt</i>, „Ich bin vor zwei Jahren nach Hannover umgezogen, und hier will ich bleiben.“ <i>I moved to Hannover two years</i> <i>ago, and I want to stay ‘HIER’.</i></p> <p>Where is Claudia right now? Wo befindet sich Claudia jetzt?</p> <p>Choice of location, in percent</p>			
	Hannover	somewhere else	either of these	I’m uncertain
First-Year Learners (N=28)	73	9	14	5
Second-Year Learners (N=19)	80	10	10	0
Upper-level Learners (N=36)	85	9	6	0
High Proficiency NNS (N=25)	100	0	0	0
German NS (N=107)	93	1	5	1

Table E1 continued

Item 21	Sabine says, <i>Sabine sagt</i> „Ich bin letztes Jahr nach Dortmund umgezogen, und da will ich bleiben.“ <i>I moved to Dortmund last year, and I want to stay 'DA'.</i> Where is Sabine right now? <i>Wo befindet sich Sabine jetzt?</i>			
	Choice of location, in percent			
	Dortmund	somewhere else	either of these	I'm uncertain
First-Year Learners (N=28)	50	41	9	0
Second-Year Learners (N=19)	30	60	0	10
Upper-level Learners (N=36)	18	61	15	6
High Proficiency NNS (N=25)	12	56	24	8
German NS (N=107)	18	48	33	1

Item 22	Monika says, <i>Monika sagt</i> , „Ich bin in London geboren, und ich bin dort auch aufgewachsen.“ <i>I was born in Lond, and I also grew up THERE.</i> Where is Monika right now? <i>Wo befindet sich Monika jetzt?</i>			
	Choice of location, in percent			
	London	somewhere else	either of these	I'm uncertain
First-Year Learners (N=28)	32	50	9	9
Second-Year Learners (N=19)	20	50	30	0
Upper-level Learners (N=36)	6	58	33	3
High Proficiency NNS (N=25)	0	96	4	0
German NS (N=107)	0	74	24	2

Table E1 continued

Item 23	<p>Lukas says, <i>Lukas sagt</i>, „Paris ist eine sehr schöne Stadt; ich habe zwanzig Jahre dort gelebt.“ <i>Paris is a very nice city; I lived 'DORT' for 20 years.</i> Where is Lukas right now? <i>Wo befindet sich Lukas jetzt?</i></p> <p>Choice of location, in percent</p>			
	Paris	somewhere else	either of these	I'm uncertain
First-Year Learners (N=28)	14	55	9	23
Second-Year Learners (N=19)	20	60	20	0
Upper-level Learners (N=36)	0	76	24	0
High Proficiency NNS (N=25)	0	96	4	0
German NS (N=107)	1	98	1	0

Item 24	<p>Stefan says, <i>Stefan sagt</i>, „Die Unibibliothek ist sehr schön; da kann ich immer gute Bücher finden.“ <i>The university library is very nice; 'DA' I can always find good books.</i> Where is Stefan right now? <i>Wo befindet sich Stefan jetzt?</i></p> <p>Choice of location, in percent</p>			
	the library	somewhere else	either of these	I'm uncertain
First-Year Learners (N=28)	9	55	27	9
Second-Year Learners (N=19)	10	60	30	0
Upper-level Learners (N=36)	3	82	9	6
High Proficiency NNS (N=25)	0	72	28	0
German NS (N=107)	1	50	47	2

Table E1 continued

Item 25	<p>Julia says to a friend, <i>Julia sagt einer Freundin</i>, „Das Restaurant Brühl ist ausgezeichnet. Warst du schon einmal hier?“ <i>Restaurant Brühl is excellent. Were you HIER before?</i></p> <p>Where is Julia right now? <i>Wo befindet sich Julia jetzt?</i></p> <p>Choice of location, in percent</p>			
	the restaurant	somewhere else	either of these	I'm uncertain
First-Year Learners (N=28)	55	14	9	23
Second-Year Learners (N=19)	90	0	10	0
Upper-level Learners (N=36)	88	3	6	3
High Proficiency NNS (N=25)	92	0	8	0
German NS (N=107)	88	5	7	1

Item 26	<p>Anna says, <i>Anna sagt</i>, „Ich bin in Frankfurt geboren, und ich bin dort auch aufgewachsen.“ <i>I was born in Frankfurt, and I also grew up 'DORT'.</i></p> <p>Where is Anna right now? <i>Wo befindet sich Anna jetzt?</i></p> <p>Choice of location, in percent</p>			
	Frankfurt	somewhere else	either of these	I'm uncertain
First-Year Learners (N=28)	18	59	14	9
Second-Year Learners (N=19)	10	60	30	0
Upper-level Learners (N=36)	3	64	33	0
High Proficiency NNS (N=25)	4	92	4	0
German NS (N=107)	0	81	18	1

Table E1 continued

Item 27	<p>„Die Neue Pinakothek hat immer fantastische Ausstellungen; ich kann hier einen ganzen Tag verbringen.“ <i>The New Pinakothek always has great exhibits; I can spend a full day 'HIER'.</i> Where is Daniel right now? Wo befindet sich Daniel jetzt?</p> <p>Choice of location, in percent</p>			
	die Neue Pinakothek	somewhere else	either of these	I'm uncertain
First-Year Learners (N=28)	59	27	9	5
Second-Year Learners (N=19)	80	10	10	0
Upper-level Learners (N=36)	88	0	9	3
High Proficiency NNS (N=25)	100	0	0	0
German NS (N=107)	92	0	7	1

Item 28	<p>Katharina says to a friend, <i>Katharina sagt einer Freundin</i> „Deine Wohnung ist sehr schön. Seit wann wohnst du da?“ <i>Your apartment is very nice. Since when have you lived 'DA'?</i> Where is Katharina right now? Wo befindet sich Katharina jetzt?</p> <p>Choice of location, in percent</p>			
	her friend's apartment	somewhere else	either of these	I'm uncertain
First-Year Learners (N=28)	23	45	23	9
Second-Year Learners (N=19)	20	70	10	0
Upper-level Learners (N=36)	6	64	27	3
High Proficiency NNS (N=25)	12	56	28	4
German NS (N=107)	5	77	19	0

APPENDIX F SURVEY INSTRUMENT

We invite you to participate in a research study being conducted by investigators from The University of Iowa. The purpose of the study is to learn more about how second language learners of German acquire and use German and how native speakers of German use and understand their native language.

If you agree to participate, we would like you to complete a brief online questionnaire. You are free to skip any questions that you prefer not to answer. It will take approximately 15-20 minutes to complete this task.

We will not collect your name or any identifying information about you. It will not be possible to link you to your responses on the survey.

If you complete the survey, at the end you will have the option of providing your e-mail address to be entered into a drawing for one of four gift certificates to amazon.com or amazon.de.

Taking part in this research study is completely voluntary. If you do not wish to participate in this study, you may choose not to visit the website or leave the website at any time.

If you have questions about the rights of research subjects, please contact the Human Subjects Office, 300 College of Medicine Administration Building, The University of Iowa, Iowa City, IA 52242, (319) 335-6564, or e-mail irb@uiowa.edu. Should you have any questions for me, please contact me using the information below.

Thank you very much for your consideration of this research study. If you would like to participate, please click on the 'next page' button below to begin.

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Sie sind eingeladen, an einem Forschungsprojekt, das von Wissenschaftlern der University of Iowa durchgeführt wird, teilzunehmen. Das Projekt beschäftigt sich mit dem Erwerb von Deutsch als Fremdsprache und der Benutzung der Sprache Deutsch von Muttersprachlern.

Falls Sie teilnehmen wollen, würden wir Sie bitten, einen kurzen Fragebogen auf dieser Webseite zu beantworten. Sie sollten dafür ca. 15-20 Minuten benötigen.

Wir werden weder Ihren Namen noch andere persönliche Daten speichern. Wir sind nicht in der Lage, die von Ihnen zur Verfügung gestellten Antworten mit ihren persönlichen Angaben zu verbinden.

Die Teilnahme an diesem Forschungsprojekt ist freiwillig. Falls Sie nicht teilnehmen wollen, könnten Sie die Entscheidung treffen, diese Webseite zu verlassen.

Teilnehmer, die ihre Mailadresse freiwillig zur Verfügung stellen, werden die Möglichkeit haben, einen Gutschein für amazon.com oder amazon.de zu gewinnen.

Falls Sie Fragen bezüglich der Rechte als Forschungsteilnehmer haben, setzen Sie sich bitte mit dem Human Subjects Office, 300 College of Medicine Administration Building, The University of Iowa, Iowa City, IA 52242, USA; Tel +1(319) 335-6564; E-Mail irb@uiowa.edu in Verbindung.

Falls Sie Fragen haben, können Sie sich selbstverständlich auch jeder Zeit mit mir in Verbindung setzen.

Vielen Dank für Ihre Unterstützung. Wenn Sie teilnehmen wollen, klicken Sie bitte auf 'nachste Seite' (unten) um anzufangen.

Please complete the following brief demographic information, skipping any questions you may be uncomfortable answering.

Beantworten Sie bitte die folgenden demographischen Fragen. Sie müssen nicht jede Frage beantworten, falls Ihnen das nicht zusagt.

1) Gender: *Geschlecht:*

- Male *männlich*
- Female *weiblich*

2) Age: *Alter:*

- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 or older 65 oder älter

3) What is your native language? *Was ist Ihre Muttersprache?*

- English *Englisch*
- German *Deutsch*
- Other (please specify) andere Antwort (bitte eingeben

If you selected other, please specify *Falls Sie 'andere Antwort' gewählt haben, bitte geben Sie Ihre Antwort hier ein:*

4) Do you speak English? *Können Sie Englisch?*

- Yes. *Ja.*
- No. *Nein*

5) In what country did you spend the majority of your childhood? *In welchem Land haben Sie die Mehrheit Ihrer Kindheit verbracht?*

- USA
- Canada Kanada
- UK
- Germany Deutschland
- Austria Österreich
- Switzerland die Schweiz
- Luxembourg
- Liechtenstein
- Other country anderes Land
- Other (please specify) andere Antwort (bitte eingeben

If you selected other, please specify *Falls Sie 'andere Antwort' gewählt haben, bitte geben Sie Ihre Antwort hier ein:*

6) In what state (or province, Bundesland, canton, etc.) did you spend the majority of your childhood? (Alternatively, you may list the name of the nearest major city.)

In welchem Bundesland, Kanton, Bundesstaat, o.ä. haben Sie die Mehrheit Ihrer Kindheit verbracht? (Sie könnten hier auch den Namen einer Großstadt eingeben.)

7) If you are not a native speaker of German, when did you first start learning German?

less than one year ago

- 1 year ago
- 2 years ago
- 3 years ago
- 4-5 years ago
- 6-7 years ago
- 8-9 years ago
- 10-20 years ago
- 20 or more years ago

8) If you are not a native speaker of German, are you currently enrolled in any German language courses?

- No.
- Yes; first year college German.
- Yes; college German review.
- Yes; second year college German.
- Yes; third year college German.
- Yes; upper-level electives.
- Other (please specify) andere Antwort (bitte eingeben)

If you selected other, please specify *Falls Sie 'andere Antwort' gewählt haben, bitte geben Sie Ihre Antwort hier ein:*

9) If you are not a native speaker of German, how much time have you spent in a German speaking country?

- None.
- Less than two months.

- 2-4 months.
- 5-6 months.
- 7-12 months.
- 1-2 years.
- 3-5 years.
- 5-9 years.
- 10 or more years.

In the first section, you will be presented with a number of short scenarios.

Following each scenario are four statements in German. For each statement, decide whether that statement is possible or not possible given the context of the situation.

In dem ersten Teil, werden Sie kurze Beschreibungen von Szenen lesen. Nach jedem kurzen Text gibt es vier Aussagen. Treffen Sie für jede Aussage die Entscheidung, ob sie in dem beschriebenen Kontext möglich oder nicht möglich ist.